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*Illustrated.

We publish in another column an interesting letter on the proposed standard box car from President Ripley of the Santa Fe, which was written in reply to an article on the same subject by W. R. Burnett, master car builder of the Canadian Pacific, published in the *Railway Age Gazette* of March 5. Mr. Ripley is the father of the movement for the standardization of freight car equipment, and is the chairman of the committee on Standard Freight Car Equipment of the American Railway Association. This is a very strong committee, the other members being President Harrison of the Southern, President Rea of the Pennsylvania, President Smith of the New York Central, Chairman Kruttschnitt of the Southern Pacific, Chairman Elliott of the New Haven and President Markham of the Illinois Central. With such a committee in charge of the general investigation of the subject and a capable sub-committee of manufacturers working out the details, the question of standardization is sure to be vigorously dealt with. Just how far the movement will be carried it is now impossible to predict, but one thing appears to be predictable with considerable certainty, and that is that it will result in the adoption of some methods or principles which will cause individual lines to pay more regard than they have in the past to the interests of the railways as a whole. As freight cars move almost as freely over foreign lines as over the lines of the companies that own them, it is the right and duty of the railways as a whole to exercise reasonable supervision over the way in which the cars of individual companies are built and maintained.

The Proposed Standard Freight Car

Of the passing of foolish and unjust railway legislation there is no end. It has long been customary for railways to give free passes to shippers of live stock to enable them to accompany and care for the stock. The legislature of Kansas has decided that shippers of live stock are entitled to an additional special dispensation, and has therefore passed an act to provide that "whenever any railroad company or corporation doing business within the limits of this state shall receive and ship any live stock by the carload and the shipper shall desire, either in person or by employee, to accompany such stock for the purpose of looking after and caring for it in transit, or if such shipper or his employee desires to ride on a passenger train from place of shipment to point designated in contract or from any intermediate point to destination, the charge for such shipment shall be held to include the passage of the shipper or his employee." It is further provided "that in all cases where more than one carload of stock is shipped at the same time the railroad company or corporation shall be required to pass one additional person for every carload or major fraction thereof in addition to the first carload, and one additional person for every six carloads or major fraction thereof after the first four carloads, provided, further, that not more than four persons shall be passed with any train load of live stock shipped by one shipper." Just how the shipper or his employee, or his four employees if he has so many, is to care for the live stock when it goes on a freight train and he or they go on a passenger train, the law does not indicate. The effect of the law, therefore, is to require the railways, for no good reason whatever, to throw in a certain amount of free transportation with every shipment of live stock. Why discriminate thus in favor of the shipper of live stock? Why not require a free pass to be issued with every carload shipment of grain or of coal or of any other commodity? Hardly ever is a session of certain state legislatures held without some such law being enacted. Are the men who pass such laws just plain fools or are they morally what they must be held to be if it be conceded that they have any intelligence?

Free Passes For Stock Shippers

The operating figures of the New York, New Haven & Hartford are beginning to indicate the results of the improvements in methods which have been and still are being introduced by the new management. The statistics for the year ending June 20, 1914, showed a marked improvement over those for the preceding calendar year, but the effects of the work of the new management became even more manifest during the first seven months of the present fiscal year, this being because during the fiscal year 1914 the management was in a difficult situation because of its negotiations with the government and because it has been profiting during more recent months by the work done during the preceding year. Some of the percentages of increase and

Operating Results on the New Haven

decrease in the operating figures during the fiscal year 1914 and the first seven months of the fiscal year 1915 are as follows:

	Year ending June 30, 1914	Seven months ending January 31, 1915
Tons one mile (revenue)	9.4 per cent dec.	9.38 per cent dec.
Freight train miles (revenue)	13.2 per cent dec.	14.81 per cent dec.
Passengers one mile	0.3 per cent dec.	7.90 per cent dec.
Passenger train miles	1.8 per cent dec.	9.93 per cent dec.
Tons per train mile (revenue)	304, or 4.5 per cent inc.	322, or 6.38 per cent inc.
Revenue per train mile (frt.)	$4.30, inc. .387	$4.53, inc. .316
Revenue per train mile (pass.)	$1.91, inc. .003	$2.03, inc. .106
Transportation expense	1.2 per cent dec.	10.5 per cent dec.
Maintenance equip. expense	8.2 per cent inc.	3.8 per cent dec.
Maintenance of way expense	11.9 per cent inc.	8.4 per cent dec.

It will be seen that in both periods there was a decrease in both the passenger and freight traffic, but that the management succeeded in reducing the freight train miles and the passenger train miles still more, so that there were good increases in the earnings per train mile, both passenger and freight, and substantial reductions in transportation expenses. The maintenance expenses in the fiscal year 1914 could not be reduced with propriety, but largely owing, probably, to the heavy reduction in traffic there have been reductions during the present fiscal year both in the maintenance of equipment and maintenance of way. The figures given are a sufficient indication of the energetic efforts being made to increase efficiency and reduce expenses.

THE RAILWAYS AND THE STEEL COMPANIES

THAT the action of the Illinois Central and other railways in the United States in buying rails from the Algoma Steel Company, a Canadian concern, should excite criticism was inevitable. The Iron Trade Review for March 18 contains a long article denouncing both the tariff policy which enables a Canadian mill to underbid United States mills in this country, and attacking the managements of the railways that have bought rails from the Algoma company. The Birmingham (Ala.) Herald also has published an editorial criticizing the Illinois Central. The *Railway Age Gazette* does not intend to discuss at this time the tariff policy involved. The question of railway policy involved is another matter.

We believe that it would be a mistake for the railways of the United States to adopt the practice of buying equipment and supplies abroad merely to secure the benefit of small differences in prices. What they would gain by the lower prices would be largely or wholly offset by their indirect losses in traffic and earnings. But there are a number of points besides these general considerations which must be weighed before it can be decided whether our railways may be justified in buying rails from the Canadian mills.

It is asserted that the low price which the Algoma Steel Company is making in the United States is merely a "dumping" proposition, and this is assigned as one of the reasons why the railways of the United States should not take advantage of it. But the steel companies of the United States have sold rails all over the world for lower prices than they have made the railways of the United States. President Farrell of the Steel Corporation testified before the Stanley Committee that the average price received by it for export rails was only $24.74. If the steel companies are justified in selling rails abroad cheaper than at home, why are not the railways of the United States justified in buying rails cheaper abroad than they can get them at home? We are not criticizing the dumping policy of the steel companies; but it is a poor rule which does not work both ways. Furthermore the Algoma Steel Company is reducing the price of rails in Canada, as well as in United States.

It is intimated that because the steel companies of the United States are such good customers the railways should be willing to pay them more than they need pay foreign manufacturers. But the railways are the best customers of the steel companies. Do the steel companies, therefore, patronize the railways when they can get cheaper transportation elsewhere? Far from it. They never hesitate to take traffic from the railways and give it to steamship lines on the Great Lakes and in the coastwise service, or to build and operate railways and steamship lines of their own and compete with the railroads. Furthermore, some of the steel companies are buying ore in Cuba and Chili because they can get it cheaper there than in the United States. If it is the duty of the railways to patronize home industries regardless of price, why is it not the duty of the steel companies to patronize home industries regardless of price?

While the spokesmen of the steel companies are charging the railways with discriminating against home industries by buying rails in Canada at lower prices than they can purchase them in this country, the record clearly shows that for years the steel companies of the United States have been discriminating against the railways right in the domestic market. The price of other iron and steel products have fluctuated from year to year according to business conditions. The price of steel rails also fluctuated prior to the organization of the United States Steel Corporation, but after the Steel Corporation was organized the basic price was fixed at $28 a ton and regardless of all changes in conditions it has stayed there ever since. It is desirable to have the price of rails stable. But there is a strong suspicion that by pursuing the policy they have the steel companies have made larger profits in proportion out of rails than out of their other products. Such good customers as the railways are entitled, it would seem, to the protection of a "most favored nation" clause. There is no evidence that they have received such protection.

While we are on this question of price it should be added that the steel companies of the United States undoubtedly could have got every order for rails which has been placed if they had been willing to come somewhere near meeting the price of the Algoma Steel Company. If they had got the business by concessions in prices, such as all other classes of railway supply concerns have had to make within recent years, they could have put men to work and got such profits from the business as it yielded. Therefore, all the talk about the responsibility of the railways for failing to do what they can to put the unemployed of this country to work is buncombe. In this connection it might be added that no question of the "pauper labor of Europe" comes in here. Labor certainly costs at least as much at the Algoma plant as it does at any plant in the United States.

There are other points of great importance to be considered which those who are criticizing the Illinois Central for buying rails in Canada have been remarkably unanimous in failing to mention. One is that the Algoma company agreed to make rails according to specifications which the American steel companies refused to accept. The railways of the United States have been struggling for years with the rail makers to get them to make better rails. The steel companies of the United States refused to make the Illinois Central's rails according to the American Railway Engineering Association's specifications, including the nick-and-break test, while the Algoma company agreed to do this. The United States mills lost this business not only because they refused to meet the Canadian mill's prices, but also because they persisted, as they have for years, in refusing to make rails according to specifications drawn up and approved by the railways. Another point is that the Algoma company gave a five year guarantee on its rails, while the mills in this country some years ago discontinued giving such guarantees.

In view of all these facts criticism of the action of certain railways in buying rails in Canada comes with poor grace from spokesmen of the steel companies of the United States. If the steel companies of this country want all the rail business of this country let them do business with the railways as they expect the railways to do business with them. If they want the railways to favor them let them favor the railways. The steel makers have abused the power their position of practical monopoly has given them both in fixing prices and in negotiating regarding the specifications according to which rails should be made. They will have no difficulty in controlling their home market if they will deal with the railways in somewhat the same

spirit in which their spokesmen are demanding that the railways shall deal with them. If the railway worm has at last turned and the steel makers of the United States are in consequence losing business, they have only themselves to blame for it.

THE INCREASE IN VOLUME OF SERVICE RENDERED BY THE ROCK ISLAND 1902-1914

IN nearly every manufacturing business the greater the output the lower is the cost per unit, and also generally the lower is the percentage of profit on each article manufactured. On the other hand, however, as a manufacturing business grows the owners may rightly expect to receive a greater total profit, despite the fact that they make a smaller profit on each article manufactured.

The units which measure the service which a railroad renders to the public are passenger miles and ton miles. The performance of these units of service is analogous to the manufacture of articles by a factory. Up to a certain point the law of decreasing cost of manufacture per unit, which is generally found in a manufacturing business, is applicable also to the performance of units of service of transportation. Beyond a certain point, however, recent railroad history has shown that an increased volume of services performed entails an enlargement of plant and facilities which at one stroke increases the unit cost of performing each service. Leaving aside, however, the rather complicated question of when any individual railroad company reaches this point where the law of decreasing cost per unit is superseded by the law of increasing cost per unit, the owners of all the securities of a given railroad have a right to expect that a larger total profit will be earned by their property, as the volume of business increases. Twice as much business could not be expected to yield twice as much profit, but it ought to yield a certain percentage of larger profit.

The Chicago, Rock Island & Pacific is under fire. It is therefore worth while to consider the real reasons for its present situation. In 1902 it rendered passenger service amounting to 372,313,683 passenger miles, and freight service amounting to 1,839,127,297 ton miles. In that year the operating income, which is the total amount of revenue received from the performance of the service rendered to the public, less taxes and the cost of rendering the service, exclusive of any return to the creditors of the company or to the owners, was $10,131,121. In 1914 the Chicago, Rock Island & Pacific's passenger service totaled 980,051,132 passenger miles, and its freight business 5,123,579,107 ton miles. The operating income for 1914 was $13,892,534. Whereas, therefore, the increase in total amount available for all security holders and for rentals was only 37 per cent greater than the corresponding amount available in 1902, the total volume of service rendered to the public in passenger business was two and a half times as great (an increase of 150 per cent) and in freight business more than two and a half times as great (an increase of 178 per cent).

	Net operating income	Passenger mileage	Ton mileage
1902	$10,131,121	372,313,683	1,839,127,297
1903*	14,524,883	438,703,832	2,452,729,874
1904	11,657,020	514,108,832	3,250,750,267
1905	11,383,310	552,903,897	3,171,456,832
1906	14,538,909	646,116,553	3,715,621,556
1907	17,518,240	725,233,506	4,281,228,365
1908	14,365,554	881,991,344	4,019,704,681
1909	16,400,527	952,679,666	4,160,828,170
1910	15,274,509	1,016,385,259	4,567,089,384
1911	16,723,139	1,010,037,752	4,718,460,846
1912	15,200,498	939,391,981	4,599,242,133
1913	15,914,395	983,696,182	5,203,973,087
1914	13,892,534	980,051,132	5,123,579,107

*15 months' figures for both earnings and service.

The accompanying table shows the operating income and the passenger mileage and ton mileage in each year, 1902-1914. It will be seen that there has been a large increase, with certain exceptions, each year in the volume of service rendered by the Chicago, Rock Island & Pacific to the public. The security holders, however, have not benefited to anywhere near the extent which they might fairly have expected to benefit from the growth of their business *even if they had not put in any additional investment.* Since there may be some doubt as to the way in which the accounts were kept previous to July 1, 1907, it is safer to deal only with the additional investment since 1907.

In 1907 the railroads were prosperous, but they were not earning an exorbitant profit even at that time. Disregarding entirely the company's figures for capitalization, and capitalizing the operating income for 1907, which was $17,518,240, at 6 per cent, the property investment of the Rock Island would have stood July 1, 1907, at $291,970,667. This is the amount on which the company in the previous year earned 6 per cent. The accompanying table shows (1) the new investment in each year since 1907; (2) the total investment, taking the figure arrived at by capitalizing at 6 per cent the operating income of 1907 and adding to it each succeeding year's additional investment; (3) the per cent which has been earned each year on the *new* capital invested since 1907, which it will be seen is in each case a minus figure; and (4) the per cent of operating income to total investment as shown in column 2.

	Additional investment	Total investment	Per cent on cumulated investment	Per cent on total
1908	$10,089,944	$302,060,611	—31.24	4.75
1909	3,642,373	305,702,984	— 8.87	5.36
1910	19,152,202	324,855,186	— 6.82	4.70
1911	2,456,438	327,311,624	— 2.25	5.11
1912	3,449,580	330,761,204	— 5.97	4.59
1913	9,537,862	340,299,066	— 3.32	4.67
1914	20,532,445	360,831,511	— 5.26	3.85

To get some adequate idea of the importance of the part which the decline in earning power of the Rock Island has played in the partial destruction of the company's credit it is worth while to study this table showing the failure of the new investment not only to earn anything for itself, but to prevent the decrease in earnings on previous investment from the point of view of the man who is asked to put new money into a railroad property. The table is like an inverted bond circular. And it must be remembered that we are dealing now not with the issue of securities, not with holding companies, not with inflated balance sheet assets, but with the actual return which the operation of 8,000 miles of railroad is making on new money spent only on additions or betterments to the property as defined by the Interstate Commerce Commission's accounting rules.

THE NEW YORK CENTRAL AND THE LAKE SHORE

The New York Central & Hudson River was able to save, almost dollar for dollar, in expenses in 1914 what it lost in revenue during that year. The combined system—Lake Shore & Michigan Southern and New York Central & Hudson River—did not, however, quite succeed in earning the total dividends paid to the public. This was due partly to the fact that the Lake Shore was not able to offset decreases in revenue through savings in expenses as effectively as was the New York Central, and partly to the loss in other income due to the reduction of dividends on other New York Central Lines.

The accounts and statistics for the entire calendar year 1914 for the New York Central & Hudson River, which operates 3,774 miles of road—the New York Central Lines East of Buffalo—and the Lake Shore & Michigan Southern, which operates 1,852 miles of road, have been kept separate, and the two tables at the end of these comments show the results of operation of the two properties separately. The tables do not show, however, the 1¼ per cent dividend declared in December by the new company, the New York Central Railroad, which took over the two heretofore separately owned properties. This fourth quarterly dividend called for approximately $2,784,000, whereas the combined surplus of the Lake Shore and the New York Central was but $1,330,000.

The loss in revenue for the New York Central system was due to general business conditions and was not any more serious than

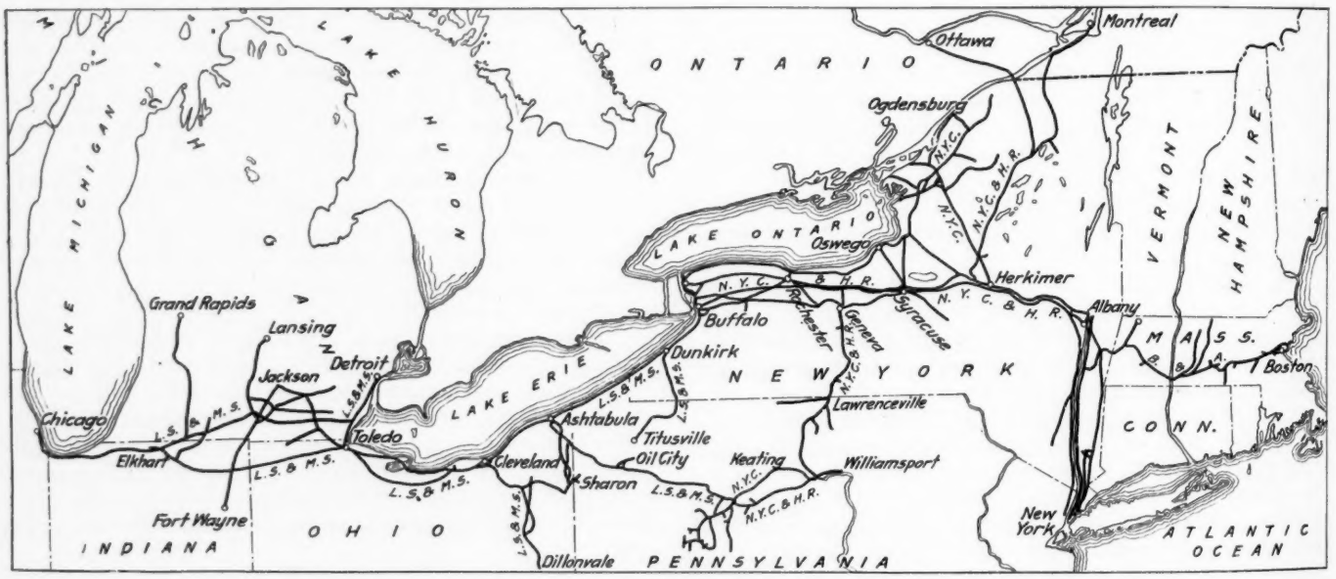
had been foreseen some time before the end of the year and predicted in the hearings before the Interstate Commerce Commission in the eastern rate advance case. On the other hand, the New York Central's ability to save a dollar in expenses for every dollar lost in revenue was a result even more favorable than had been generally hoped for. It is an augury for the future of far more moment than might at first appear.

Total operating revenues for 1914 for the New York Central & Hudson River amounted to $112,741,000, a decrease as compared with the previous year of $9,943,000, or 8.1 per cent. Total operating revenues amounted to $84,033,000, a decrease of $9,381,000, or 10 per cent. It will be noted from the table showing the results of operation that the loss in freight revenue was greater proportionately than the loss in passenger revenue. This fact, of course, was to a certain extent a help in holding down transportation expenses, since it is easier to cut down freight-train mileage to correspond with the loss in business than it is to cut down passenger-train mileage. Even so, however, there was a loss of $2,766,000 in passenger business, to offset which expenses in some department had to be cut.

Transportation expenses in 1914 amounted to $41,846,000, a decrease as compared with the previous year of $3,718,000. The greatest saving which has been made in railroad transportation expenses in recent years has, of course, been through the increase in average trainload of freight. In 1914 the New York Central's total trainload, including company freight, was 633 tons, an increase over 1913 of 28 tons, or 4.7 per cent. It has been an almost universal rule that along with an increase in trainload there has gone an increase in train-mile expenses. But the distinguishing feature of the New York Central's economies in transportation expenses in 1914 was that train-mile expenses were held down even below 1913, despite the heavier freight-train load and exactly the same average number of passenger cars per passenger-train. Thus, the total train mileage in 1914 amounted to 45,929,000, which was less by 6,624,000 miles, or 12.6 per cent., than in 1913, while train enginemen's wages amounted to $4,246,000, a decrease of $709,000, or 13.8 per cent., as compared with the previous year, and fuel for train locomotives cost $6,469,000, a decrease as compared with 1913 of $957,000, or 12.9 per cent. The wages of trainmen cost $5,182,000, a decrease of only $130,000; but the full-crew law, which went into effect in September, cost the company in trainmen's wages approximately $350,000, so that there would have been a corresponding saving in this item had it not been for circumstances beyond the control of the management.

The reasons why the New York Central was able to make these economies in transportation expenses are numerous. The most obvious one was that the management, with the falling off in business, was able to store the lighter engines which it had in service at the beginning of the year and only use its best power. This made better time possible, even with the increased trainload, and helped to offset the effects of the very severe weather in January and February and part of March, 1914. While this is the easiest explanation of the saving in transportation expenses, and to this fact may be ascribed a larger percentage of saving than to any other one single fact, it is not by any means as important as the bulk of the saving made by a multitude of other items not so easy of description.

For three years the New York Central has now had in effect a system of daily reports for the performance of each train on each division, which reports are made by the superintendent to the general manager and to the vice-president in charge of operation. It is quite impossible to say just when an improved system of supervision begins to show results, but it is safe to say that a part of the good showing in 1914 was due to the effectiveness of this method of supervision. The New York Central also has a system by which operating officers make out a budget, which is sent to the vice-president's office by the first of each month. By means of this budget, the daily telegraphic report of carloading and the daily report of train performance, it is possible to get a close, effective supervision over transportation expenses that would have been undreamed of a few years ago on the New York Cntral.



The New York Central & Hudson River and the Lake Shore & Michigan Southern

A reflection of this close supervision is to be found in yard expenses. Wages of yard conductors and brakemen amounted to $2,153,000 in 1914, a decrease of $262,000. The wages of yard enginemen amounted to $1,451,000, a decrease of $238,000, or over 14 per cent. With the general manager's office in such close touch with carloading, switch engines could be laid off before they had begun to eat their heads off in fuel and enginemen's expenses.

The saving in cost of fuel for train locomotives is worth noting. The average cost of coal per ton in 1914 was $1.82 as against $1.91 in 1913. The installation of improvements to locomotives, such as the superheater and brick arch and better types of valve gear, has made it possible to get as good results out of a cheaper coal as were heretofore gotten from more expensive coal.

Loss and damage to freight cost $1,321,000 in 1914, or $248,000 less than in 1913, and injuries to persons cost $604,000, or $252,000 less than in 1913. At least a part of the saving in loss and damage to freight is probably directly attributable to

the work of the ten supervising agents who have this matter directly in charge. These supervising agents occupy a position in regard to station agents somewhat analogous, insofar as authority goes, to the position of master mechanic or roadmaster in their departments. The supervising agents, however, act both as traveling inspectors and as superior officers to the agents. The saving in injuries to persons is in part due to the campaign for safety first which the New York Central has been carrying on, and in part to the success which has been met with in getting the co-operation of magistrates and town authorities in the suppression of the trespassing evil.

Maintenance of way cost $13,870,000 in 1914, a decrease of $3,394,000 as compared with 1913, and maintenance of equipment cost $21,598,000, a decrease of $1,726,000. The smaller maintenance of equipment charges are almost exactly proportionate to the smaller mileage and are the result of the reduction in cost of repairs of locomotives and of freight-train cars and to a reduction in the charges for retirements of locomotives, fewer engines being scrapped in 1914 than in 1913.

The reduction in maintenance of way expenses looks large. It is, however, the result of two distinct factors. One of these is the smaller expenditure for what may be called maintenance proper, that is, renewals of rails, ties and ballast, made necessary to maintain the same standard, and the wages of trackmen engaged entirely in maintenance of roadbed and the temporary discontinuance of the general program for the betterment of the property, part of which representing renewal in kind being chargeable, of course, to maintenance. It is estimated that the amount of the reduction in maintenance proper in 1914 as compared with 1913 was about $1,700,000, and that the remainder of the reduction is accounted for by the suspension of betterment work involving charges to maintenance. Thus, a saving of $394,000 in the maintenance charge for station and office buildings is largely accounted for by the charges in 1913 necessitated by the improvement work and replacement work at Utica, N. Y., and Rochester. The saving of $342,000 in maintenance charges for signals and interlocking is largely due to the fact that in 1913 a large mileage of lock and block system was replaced with automatic block, necessitating extraordinary charges to maintenance. Much of the saving in charges for rails and for other track material is due to the suspension of the programme of relaying branches and yards with heavier rail to bring up the average standard of the whole system.

In 1914 the New York Central spent a total of $15,442,000 for additions and betterments chargeable to capital account. Of this, $7,886,000 was on account of equipment and $7,556,000 on account of road and structures.

THE LAKE SHORE.

The Lake Shore & Michigan Southern earned total operating revenues in 1914 of $51,524,000, a loss as compared with 1913 of $7,829,000, or 13.19 per cent. As was the case with the New York Central, the loss in freight revenue was proportionately larger than in passenger revenue, the total freight revenue in 1914 amounting to $31,980,000, or 16.94 per cent less than the freight revenue in 1913. The total tonnage of freight carried amounted to 33,818,000, or 21.52 per cent less than in the previous year, and the average haul was slightly shorter in 1914 than in 1913, being 162 miles as against 163.6 miles. The total ton mileage, therefore, was less by 22.59 per cent. The average revenue trainload was 698 tons as against 689 tons the year before, and the total trainload, including company freight, was 743 tons as against 735 tons the year before. The saving, therefore, in freight-train mileage was a little greater than the loss in ton mileage, being 23.5 per cent. The accompanying table shows the percentage of each class of operating expenses for both the Lake Shore and the New York Central to total operating revenues.

	1914		1913	
	N.Y.C.	L.S.	N.Y.C.	L.S.
Maint. of way and structures.	12.30	10.80	14.07	12.84
Maintenance of equipment....	19.16	21.11	19.01	21.08
Traffic expenses	1.65	1.86	1.86	1.81
Transportation expenses	37.12	35.49	37.14	34.96
Miscellaneous expenses	1.86	1.14	1.80	1.12
General expenses	2.45	2.77	2.26	1.86
Total	74.54	73.17	76.14	73.70

Operating income for the New York Central in 1914 amounted to $22,543,000, or but $369,000 less than in 1913, and operating income for the Lake Shore amounted to $11,421,000, which is less by $2,073,000 than in 1913. The Lake Shore paid $6,000,000 in dividends in 1914, which, of course, went to the New York Central, as against $9,000,000 in 1913, and had a surplus of $1,125,000 as against $3,488,000 in 1913. The loss, therefore, in total profit was $5,363,000. The loss in profit (net corporate income) on the New York Central, exclusive of the $3,000,000 less received from the Lake Shore, was $1,555,000, making a total decrease in the amount available for dividends for the combined system of $6,918,000.

At the end of the year the Lake Shore & Michigan Southern had cash on hand amounting to $6,591,000 and loans and bills payable of $52,805,000. The New York Central has cash amounting to $16,079,000, and loans and bills payable of $60,510,000. Since the close of the year the new company—the New York Central Railroad—sold $100,000,000 6 per cent convertible debentures (see *Railway Age Gazette*, February 12, page 253). The proceeds of this sale, therefore, were nearly sufficient to pay off loans and bills payable.

The following table shows the principal figures for operation for the New York Central & Hudson River in 1914 and 1913:

	1914	1913
Mileage operated	3,774	3,753
Freight revenue	$62,384,617	$69,138,506
Passenger revenue	33,309,634	36,075,364
Total operating revenue.....	112,741,051	122,683,809
Maint. of way and structures.....	13,869,996	17,263,640
Maintenance of equipment.....	21,598,429	23,324,676
Traffic expenses	1,864,687	2,284,421
Transportation expenses	41,846,479	45,564,015
Miscellaneous expenses	2,094,827	2,201,031
General expenses	2,758,688	2,776,653
Total operating expenses.....	84,033,106	93,414,436
Taxes	6,162,220	6,356,546
Operating income	22,542,846	22,912,827
Gross income	36,674,325	39,581,056
Net income	8,688,672	13,243,558
Dividends*	8,458,890	11,243,021
Appropriations	24,347	.....
Surplus	205,435	2,000,537

*The last quarterly dividend on the New York Central & Hudson River stock was not declared by the old company but was declared by the new company and therefore is not included in the dividends in 1914.

The following table shows the principal figures for operation for the Lake Shore & Michigan Southern in 1914 and 1913:

	1914	1913
Mileage operated	1,852	1,853
Freight revenue	$31,979,888	$38,490,184
Passenger revenue	12,735,522	13,426,215
Total operating revenue	51,524,286	59,353,110
Maint. of way and structures.....	5,561,823	7,623,194
Maintenance of equipment	10,877,317	12,510,549
Traffic expenses	960,220	1,074,108
Transportation expenses	18,284,602	20,748,911
Miscellaneous expenses	589,774	664,501
General expenses	1,425,615	1,124,133
Total operating expenses	37,699,351	43,745,396
Taxes	2,413,900	2,126,438
Operating income	11,406,063	13,481,276
Gross income	19,012,176	23,954,488
Net income	7,124,874	12,488,340
Dividends	6,000,000	9,000,000
Surplus	1,124,874	3,488,340

NEW BOOKS

Poor's Summary of Investment News. Compiled by Poor's Railroad Manual Company, 535 Pearl street, New York. 558 pages, 6 in. by 9 in. Bound in cloth. Price $5.

This is a reprint of the news items that have appeared in Poor's Daily Summary from April 1 to December 31, 1914, inclusive. The book is made up of a large number of news items pertaining to matters affecting the financial condition of the principal investment corporations, taken from financial and daily papers

all over the United States and Canada, presented in condensed form in alphabetical order for quick reference. Under the names of the various companies the items are presented in chronological order. This book is intended to supplement the information given in Poor's railroad and industrial manuals, for the benefit of those who desire recent information in connection with the information given in reference books. It also, of course, gives a record of rumors, newspaper reports and other news that never gets into the reference books.

Proceedings of the American Railway Bridge & Building Association. Compiled and published by the association, C. A. Lichty, secretary, 319 North Waller avenue, Chicago. Size 6 in. by 9 in., 312 pages. Bound in paper and cloth. Price $1.

This volume contains the proceedings of the twenty-fourth annual convention of this association held at Los Angeles, Cal., October 20-22, 1914, and includes reports and discussions on the subjects of Railroad Ice Storage Houses; Warnings for Overhead and Side Obstructions; Reinforced Concrete Bridges; Mechanical Coaling Stations; Care of Traffic and the Construction of Bridges to Eliminate Grade Crossings; Water Pipe, and Concrete Posts, Poles and Signs. The report on Railroad Ice Storage Houses is specially complete and forms a valuable addition to the literature on this important subject.

The Arguments For and Against Train-Crew Legislation. Bulletin No. 73, issued by the Bureau of Railway Economics, Washington, D. C. 44 pages, 6 in. by 9 in. Bound in paper.

In 1913 the Bureau of Railway Economics issued Bulletin No. 53, entitled "The Arguments For and Against Train-Crew Legislation." There has been a large demand for the bulletin, and whereas such legislation continues to be sought by the Brotherhood of Railroad Trainmen, the bulletin has been revised and the information has been brought up to date in Bulletin No. 73. Following the repeal of the train-crew law in Missouri by referendum vote, the brotherhood has been advocating in some states train-limit bills as substitutes for or in addition to train-crew bills. The bulletin states that practically all of the arguments advanced against train-crew legislation apply with equal or greater force to bills to limit the number of cars in a train or the length of a train, and that there are also strong arguments against train-limit legislation which do not apply to train-crew legislation. The bulletin gives the history of train-crew legislation, and discusses the various arguments for and against it under the following chapter headings: Changing Conditions of Train Operation; Train Crews Under Present Conditions; Effect of Train-Crew Legislation; Issues Involved in Train-Crew Legislation; Train Crews and Accidents; State Action on Train-Crew Legislation and Train-Crew Legislation Vetoed by Governors.

Information. Compiled by the publicity department of the Pennsylvania Railroad. 200 pages 6 in. by 9 in. Bound in cloth.

Under this title the Pennsylvania Railroad has bound in book form a series of leaflets issued during the year 1914 by the Pennsylvania Railroad System in the interest of improved service, increased efficiency and a better understanding by employees and the public of railroad problems. The following articles are included in these leaflets: Address by R. H. Newbern on "The Pennsylvania System for Preventing Personal Injuries"; address by George D. Ogden on "How This Railroad Helps the Farmer"; an address by Ivy L. Lee on "What Can We See Ahead in Railroading?"; an address by President Samuel Rea on "The Necessity for Constructive Policy in the Practice of Public Regulation"; and articles on "What the Pennsylvania Railroad Does for Safety"; "The Paramount Cause of Deaths on American Railroads"; "How This Railroad Safeguards Its Employees and the Public"; "Digging the Railroad Out of the Snow"; "Some Incidents in This Railroad's Daily Task of Serving the Public"; "Cleaning up the Railroad's Front Yard"; "A Description of the Annual Track Inspection in 1914"; "Moving a 720-ft. Bridge Into Its Permanent Abode," and "Improving Pennsylvania Freight Service by Providing All-Steel Box Cars."

Letters to the Editor

PRESIDENT RIPLEY ON THE STANDARD BOX CAR

SANTA BARBARA, Cal.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In the *Railway Age Gazette* of March 5 appears an article by W. R. Burnett, master car builder of the Canadian Pacific entitled: "The Standard Box Car—A Negative Viewpoint."

It is my belief that Mr. Burnett is wrong in many, if not most, of his conclusions. Our principal trouble—and perhaps the one which made everybody anxious for the establishment of a standard car—is exactly the reference to the "traffic department" that Mr. Burnett advocates. The pressure brought by shippers has resulted in cars of all sizes and sorts for the benefit of individual industries, and has been destructive of standards.

Doubtless it is desirable to combine the maximum of strength with the minimum of weight, and that is what our committee wants and is trying to do, but at present we have the extreme idea of lightness at the expense of strength, and vice versa. Moreover, most of us are not as fortunate as Mr. Burnett in being able to use our cars on our home road 90 per cent of the time. Without present access to figures, I should say that in the cases of some of our principal roads the percentages would almost be reversed. On some roads, I believe that certainly more than half the cars seen moving in trains are "foreign."

Steel framing is desirable, and perhaps may soon be universal, but it is not universal yet. Meantime wooden cars are being turned out, and their owners are collecting just as much per diem as for a better car, and we have to repair them—ergo, they should be standardized. There may be some roads so isolated or otherwise fortunate to the extent that they have nothing to gain by standardization, but I believe it will redound greatly to the benefit of most of us.

E. P. RIPLEY,
President, Atchison, Topeka & Santa Fe.

"STATISTICS"

CHICAGO, Ill.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Chapter II.—(With apologies to "C. C." and reference to the *Railway Age Gazette* of February 12.)

It was something more than a year later. The superintendent of the Uppannattit division walked into his office with the confident air of one who knows. The old misleading statistics were ancient history. Picking up the daily statement of freight train operation, compiled in his own office from the train sheets and wheel reports, he quickly noted in turn the performance of fast freight, local and tonnage trains, with the movement of each, the overtime in money and the potential and actual tonnage with the explanation of failure to handle full rating.

One case not fully explained was discussed with the chief despatcher, who came in answer to the buzzer. The chief scribe also came in. "Overtime showing is fine," he said. "With more business and worse weather we are showing less overtime than we did either last month or a year ago." The superintendent glanced at the neat loose-leaf book which was handed to him, placed it in his pocket, dropped its counterpart into the basket to be brought up to date on the morrow and laughed comfortably. "Yes," he said, reaching for a small blueprint. "Yes, and wage cost per hundred train-miles and per thousand gross ton-miles wasn't so bad last month, either, and train haul and car loading are both showing the results of our campaign, too." "Great business, this of knowing where you are all the time. Watch the car sheet, Billy, the empty mileage looks a little high," and tossing a cigar to each he walked out.

"The old man looks ten years younger," remarked the c. t. d., as he struck a match. "He sure was one worried man." The c. s. chuckled. "He wasn't the only man who was worried," he replied. "I guess the g. m. and I got a new lease on life about the same time."

E. H. DEGROOT, JR.

Operating Results of Canadian Railways in 1914

Falling Off in Railway Earnings and Traffic Tell a Plain Story of the Commercial Depression in Canada

By J. L. Payne
Comptroller of Statistics, Ottawa

The great European war is, incidentally, emphasizing the intimacy between trade and traffic. Railway earnings are barometric in their reflection of the commercial activities of a people. They go up or down with the fluctuations of trade. This is not generally understood. It cannot be, or there would be a better and saner appreciation of the functions of our great carrying agencies. When earnings are on the ascendant there are many who fail to see in that fact the throb of national strength and success. They are apt to cry out that the railways are wringing too much from the people and must be restrained; but in the day of adversity, when earnings come tumbling down, they are not sympathetically disposed toward the hard-hit railways. There seems to be lacking that judicial view of the case, which recognizes the soundness of balancing good years against bad years.

The railways of Canada did not earn quite as much in 1914 as they did in 1913, and in 1915 they will inevitably run considerably below the record for 1914. This loss will fall upon the people at large with just as much severity as upon the railways. There is no industry, not even agriculture, which makes such a wide distribution of its prosperity as does the railway industry, and it is equally true that the pinch of railway poverty is as quickly diffused among all classes of the community. We shall have to learn a new lesson. For more than thirty years, with the single exception of 1909, we have seen railway earnings in Canada mount upward. During the past ten years in particular they have made sensational leaps. It comes, therefore, as somewhat of a shock, a disturbing departure from what was accepted as the established order, to find that for the year ended June 30 last there was a decline of $13,619,164, or from $256,702,703 in 1913 to $243,083,539 in 1914. Operating expenses, on the other hand, were reduced by only $3,036,431; so that net earnings, as represented by the difference between gross earnings and operating cost, fell off by $10,582,733 for the year. This result created a serious jump in the ratio of operating expenses to gross earnings. That ratio in 1912 was 68.7; in 1913 it rose to 70.9, and in 1914 to 73.6.

Of course, this setback happened, as has been pointed out, after a long period of really remarkable progress. That progress is strikingly demonstrated in the following statement of gross earnings per mile of line, which has not heretofore been published:

1899	$3,608	1909	$6,018
1904	5,158	1914	7,894

The decline for 1914 was equal to $866 per mile. The story is told succinctly in the following comparison of the sources of earnings in 1913 and 1914:

	1913	1914
Passenger service	$74,431,994	$72,564,203
Freight service	177,089,373	165,753,731
Station and train privileges	1,566,721	1,044,737
Telegraphs, rents, etc	3,614,615	3,720,868
Total	$256,702,703	$243,083,539

The principal falling off was in earnings from freight service, which was due to the hauling of 5,598,721 tons less than in 1913. The number of passengers carried was actually some 471,515 more than in the preceding year, yet the volume of earnings from ticket sales declined by $2,429,134. The reason for this is found in the fact that the average passenger journey fell from 71 miles in 1913, a comparatively high average, to 66 miles in 1914. That little five miles seems to have cost the railways nearly two millions and a half of dollars.

At this juncture a few condensed facts with respect to the public service of Canadian railways may illuminate the whole traffic situation in 1914:

Tons hauled	101,393,989
Passengers carried	46,702,280
Tons one mile per mile of line	716,359
Passengers one mile per mile of line	100,309
Receipts per passenger per mile, cents	2.007
Receipts per ton per mile, cent	.742
Average receipts per passenger	$1.328
Average receipts per ton	$1.614
Passengers per train	59
Tons per freight train	353
Tons per loaded car	19.18
Cars per freight train	18.4
Average freight haul, miles	217

The tendency to centralize railway interests in Canada continues. Last year, for example, 79 per cent of all traffic and earnings attached to three corporations—the Canadian Pacific, the Canadian Northern and the Grand Trunk. The Grand Trunk Pacific is counted in with the Grand Trunk. If seven other units be taken in, the ratio rises to 92 per cent, leaving but 8 per cent for all remaining lines, nearly ninety in number. This work of absorbing the carrying trade into relatively few hands has been proceeding for a number of years, and has not aroused serious opposition. The conviction obtains in the communities more or less directly affected that it has made for better service, without in any degree causing higher rates. In the western provinces, particularly in Manitoba, there has existed for some time a hostile feeling against the Canadian Pacific, resulting in urgent appeals for lower rates. This hostility, strange to say, is not directed at all against either the Canadian Northern or the Grand Trunk Pacific, which serve the same territory and have precisely the same rates as the Canadian Pacific. The officers of the latter allege that their company is paying the penalty of prosperity. The Canadian Pacific has voluntarily made concessions, and the railway commission has dealt with the whole matter judicially; and yet the great pioneer road of the prairie provinces, of which Canadians are justly proud, has not entirely turned some of the agitators into positive friends.

The foregoing observations, apropos of the case of the Canadian Pacific, quite naturally suggest the broad question of freight rates in Canada. The average receipts per ton per mile by all the railways of the Dominion in 1914 were 0.742 cent. There has not been any material change in this fundamental factor during the past eight years, and information back of that period is not available. The tendency in rate adjustments has for a long time been downward, and while earnings were rising steadily, as the result of swelling traffic, it would perhaps have been unpopular to permit increases. Happily, Canada escaped the two cent per mile passenger rate agitation which overwhelmed so many of the state legislatures across the boundary, and carried in its train a mass of admittedly meddlesome and restrictive legislation affecting railways. The situation on this side of the line might be summed up in this conclusion: While freight rates have not in any direction been increased, there have been numerous specific reductions and also changes of classification; so that, on the whole, there has been a slight impairment of earning power. This was not resisted by the railways while the tide of prosperity was running high; but the whole matter may assume a different complexion, and properly so, in the face of serious reverses. Since the outbreak of war there have been heavy declines in earnings, and no one may say when the trend will turn upward. Of course, the productive potentialities of the Dominion cannot be destroyed,

and the return to normal conditions is obviously a matter of time; but, without reference to how and when the volume of traffic will be restored to former levels, fair play demands that the persistent rise in the cost of operation should be recognized in its full bearing on rates.

In 1899 it cost 77.9 cents to run a train one mile in Canada. In 1914 it cost $1.66—an advance of 113 per cent. During the same period earnings per train mile increased by precisely 89 per cent. Such a disparity could only be endured by the railways under very favorable conditions. Should the very unfavorable conditions which have been created by the war and other causes persist for a term of years, it is clear that the railways will be compelled to take broad and comprehensive measures for either the betterment of earnings or the reduction of operating expenses. Indeed, there are signs that steps in the latter direction have already been taken. The larger roads have not only begun the cutting down of their working staff where possible, coupled with the elimination of certain trains and other services, but they have announced the imperative need for a recasting of the scale of compensation to employees.

Speaking broadly, railway corporations in Canada have been on good terms with the various brotherhoods with which their employees are identified. They have been able to meet the demands for higher pay out of buoyant earnings. It must not be assumed that the brotherhoods, representing a high standard of intelligence, will be disposed to ignore the force of economic conditions; but it is contrary to both human nature and considerations of policy to submit to a break in the movement for larger remuneration, which has continued almost uninterruptedly for twenty years, without resistance in some form. At this stage it would be impolitic to indulge in surmise, and nothing else is possible. The issue should turn upon conditions, as to which employee and employer will be well informed; for we live, happily, in time when the operations of railways are carried on in the open.

The vitality and soundness of a large group of railways may properly be tested by the same standards which are applicable to any one of the units. That is to say, a railway would be regarded as strong and prosperous if its operating expenses fell sufficiently far below gross earnings to leave a fair balance after fixed charges had been met, provided always—and this is absolutely vital—that the balance to profit had not been realized at the expense of physical property. The railways of Canada as a whole would not shrink from such a test. Indeed they appear to advantage when it is applied. In 1914 the ratio of operating expenses to gross earnings was 73.63 per cent, and that result was achieved after more than ordinary expenditures had been made for the upkeep of roadbed and equipment. In other words, net earnings have not been the result of an unsound policy with respect to operating conditions. During the past five years the outlay for maintenance of way and structures and for equipment has averaged 21.02 and 20.42 per cent, respectively, of total operating expenses, and that is somewhat better than the average of United States railways during the same period. In 1914, for example, $35,292,227 was expended on way and structures, and $36,375,331 on maintenance of equipment, these outlays being equal to $1,146.07 per mile of line in the first case, and $1,181,121 in the second. It can be fairly said that there has been a persistent movement toward the best standards in all service conditions, and Canadian railways do not in any respect fall below those of the United States in all that makes for general efficiency and comfort.

During the past three years the railways of Canada have made the following additions to rolling stock: Locomotives, 1,228; passenger cars, 1,489, and freight cars, 77,032. The betterment is strikingly shown in the following comparison:

	Per 1,000 miles of line	
	1907	1914
Locomotives	156	176
Passenger cars	162	194
Freight cars	4,783	6,636

Quite as important as numbers has been the rising scale in capacity of both hauling and carrying units. For example, the average capacity of a car in freight service in 1907 was 27.6 tons. In 1914 it was 33.2 tons. Likewise, the average trainload has been raised from 260 tons in 1907 to 353 tons in 1914. The direct effect of recent large additions to equipment has been to completely silence the general outcry against car shortage which had been heard for many years; but, owing to perhaps unavoidable, but nevertheless wasteful, marketing conditions, this has been achieved at the expense of loading the railways with a heavy surplus of cars during at least four months in the year. Some of this new rolling stock came from the United States. The official return of imports from across the line for 1914 shows that Canadian railways brought in 166 locomotives, 208 passenger cars, 4,596 freight cars and 4,113 other cars from the American side, which made up a total account of $7,987,877.

Canada has been taking giant strides for a number of years in railway construction. In 1914 the addition to operative mileage was 1,491 miles, bringing the total up to 30,795. This is considerably more than the mileage of the United Kingdom, and raises Canada to fifth place among the nations of the world in the matter of railways. The increment during the past ten years amounts to 11,364 miles of line. While the distribution of this new mileage has affected all the provinces, the west has had over 70 per cent of it. That is where the need has existed, and still exists, as the result of rapid settlement. It should also be mentioned, and perhaps with warranted emphasis, that during the year under review 309 miles were added to second track, making the total 2,293, and 583 miles to yard track and sidings, the aggregate of which was thereby brought up to 7,518 miles.

Perhaps more striking than the additions to operative mileage are the facts with regard to lines under construction. The situation on June 30, 1913, and 1914 was as follows:

	1913	1914
Surveyed	6,558	11,472
Under contract	8,591	5,521
Completed	2,956	3,417
In operation	542	2,443
Total	18,648	22,853

The mileage "in operation" refers to mileage which had not on June 30 last been officially taken out of the "under construction" classification. It is quite a common thing for the Railway Commission to permit parts of new lines to handle traffic pending the completion of the whole, and also to allow completed railways to be operated for a limited period by the contractors. It is reasonable to assume, however, that at least 10,000 miles of new line now in various stages of construction will be added to official operative mileage within the next four or five years. Of course, at this juncture no one may say what effect the war in Europe will have on the whole railway situation, especially with respect to availability of capital.

Building railways nowadays is an expensive proceeding, and it should not therefore be regarded as surprising that the capitalization of the Canadian system was increased by $276,990,000 during 1914. This increment consisted of bonds, $169,145,686; common stocks, $97,794,137; and debenture stock of the Canadian Pacific, $10,050,246. By these additions the aggregate liability was brought up to $1,808,820,761. In addition there were stocks amounting to $64,637,500 and bonds totalling $88,669,809 attached to lines officially regarded as being under construction; so that the final total would be $1,962,128,070. It was definitely ascertained that the interest on all outstanding bonds was paid. Dividends for the year ran up to $30,434,601, as compared with $27,333,373 in 1913. The force of these figures is accentuated by the fact that seven years ago the aggregate of dividends was $12,760,435. Funded debt in 1914 amounted to $23,481 per mile of the lines affected, which cannot be regarded as high. Stocks had an average of $30,138 per mile.

The policy of aiding railway construction continues, and in 1914 the largest expenditure for that purpose was made since

subventions were begun. Direct cash subsidies amounted to $16,583,059, of which all but $523,260 came from the federal treasury. That, however, fell far short of the contributions which were made by the Dominion and the provinces in the form of guarantees of bonds. Parliament voted $45,000,000 of guarantees to the Canadian Northern in May last, following very much larger assistance to that company in subsidies and endorsements in preceding years. The total account for guarantees having legislative authorization reached $406,259,165 on June 30 last, of which $188,965,063 stood in the name of the Dominion. The western provinces are chiefly involved in connection with the remainder, and as these guarantees are precisely like the endorsements made in everyday life of promissory notes, it will be seen that the situation would be exceedingly serious if default should be made by the railways concerned. However, these obligations represent two things: The optimism of the west and the need for transportation facilities. Under normal conditions nothing more will happen than happens when one friend endorses for another. The west will get its railways—has, in fact, already got thousands of miles of new line by that process—and the railway corporations will pay principal and interest. The emphasis is on the word "normal." It must also be borne in mind, before the attitude of the Canadian people in respect of transportation is understood, that the Dominion government is building the eastern section of the Grand Trunk Pacific, and has expended on that account $150,000,000; that it has guaranteed the bonds of the Grand Trunk Pacific for the construction of the western section, and had actually purchased $33,116,000 worth of these bonds up to June 30 last in order to secure par value for the company.

The war, following closely upon a lull in high pressure traffic conditions—a lull which might have been wholly temporary—has disturbed the fundamentals of commerce in Canada. One does not, however, see the effects very plainly. Production seems to be proceeding. There are not many industrial establishments idle. Business is apparently being carried on as usual. But the railway barometer tells a plain story of depression, and it is infallible, as has been said. The pinch here and the slackness there are reflected from ocean to ocean in lowered freight earnings. There may not be discouragement—you certainly would not hear anything pessimistic in Canada at this time of trial—but everybody realizes that economy is necessary. At the foundation of nearly all great commercial upheavals one may find uncertainty, and that word expresses the situation just now in Canada. So far as the railways are concerned, they cannot possibly escape the constriction; and the hard part of it is that, while many begrudged them a reasonable share in the prosperity of the past decade in particular, they will look in vain for general sympathy in any distress which the great European war may force upon them. War is not like any other disturbing influence. Neither its duration nor its consequences can be gaged. Under such abnormal conditions no one may say what will be the position of Canadian railways six months hence. Everything depends on what happens in Europe.

There was one element of relative novelty in the railway situation in Canada last year which is worthy of attention in a concluding paragraph. For a number of years past the railways have been experimenting with the despatching of trains by telephone. These tests must have been satisfactory; for on June 30 last, as was definitely ascertained, 7,297 miles of line were operated wholly by means of the telephone. In addition, 5,068 miles were operated by the joint use of telephone and telegraph. Although the introduction of the telephone to this extent must represent an important change so far as telegraph operators are concerned, it is understood that an adjustment has taken place without either serious friction or hardship.

WORK ON THE BERLIN SUBWAY.—In spite of the war, work is being pushed on an extension of the Berlin subway. At the present time work is in progress on the tube along Friedrichstrasse, Berlin's principal thoroughfare.

A ROLL OF HONOR FOR TRAINMEN

Andrew Keiser, superintendent of the Conemaugh division of the Pennsylvania Railroad, Pittsburgh, Pa., has established in the train service of his division a "roll of honor"; that is to say, he has reversed the common practice of publishing information about the bad conduct of those employees who have to be disciplined, and instead publishes a list of the names of those men who have performed their duties satisfactorily for a year without any occasion for censure or punishment.

Mr. Keiser's primary motive appears to have been the hope of reducing the number of cases of discipline. In the railway service the object in giving prominence to punitive discipline is to warn other employees and give them the information, instruction or incentive which shall make them avoid the errors which are shown up; and Mr. Keiser hopes that equally satisfactory warnings can be given by publishing the evidence of satisfactory service rendered. The hope of reward—and a place on the roll of honor is a reward—should be as strong an incentive as the fear of punishment.

Concerning the operation of the new plan Mr. Keiser writes:

"In carrying out the idea there was prepared an "honor roll" containing the names of all employees who had been in active train service during the entire year 1914 without being disciplined; and the list contains the names of a very gratifying majority of a total of 709 employees in active service the entire year. The rosters show a total of 1,145 such men in that service during the year, but only 709 of these were in active service during the whole period, and it was necessary to use the smaller figure in preparing the statement in order that it might be on an equitable basis. It would not be fair to compare a man in this respect, who had been in the service, for example, only a month or two, with one who had served the entire year.

"In connection with the 'honor roll' the superintendent issues the following appeal:

"This HONOR ROLL is to be issued annually. You are all earnestly requested to assist in making subsequent honor rolls still larger, thereby individually reaping the benefits as well as increasing the efficiency of our work.

"To keep up the interest in the scheme it was deemed advisable to issue a monthly supplement, briefly placing before the men anything in the way of good results obtained because of their satisfactory service, and the January supplement reads:

"The discipline found necessary to impose on train employees during the month of January, 1915, as compared with January, 1914, shows a decrease of 73 per cent, and the value of time so lost to employees concerned and their families, a reduction of $1,340.24.

"This favorable showing is very gratifying to the management and one which train employees should be proud of.

"The record for the month of February will compare very favorably with those shown in January.

"The honor roll and the monthly supplements are posted under glass in the offices of superintendent, trainmaster, assistant trainmasters, road foreman of engines and engine house foreman.

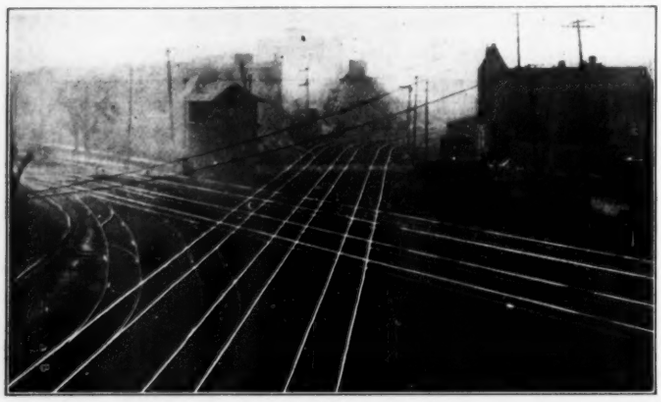
"No change has been made in the manner of considering and applying discipline in the usual manner. It is believed that this is necessary as a means of properly controlling a small percentage of the men involved, usually the younger element. . . ."

AMERICAN FOREIGN COMMERCE.—An analysis of the foreign commerce of the United States in the American fiscal year 1914 shows that vessels flying the British flag carried 53.45 per cent of the imports and exports of the United States during that period. The corresponding proportion carried by German shipping was 13.79 per cent; by American shipping, 9.26 per cent; by French shipping, 4.64 per cent; by Dutch shipping, 4.10 per cent; by Norwegian shipping, 3.49 per cent; by Japanese shipping, 2.14 per cent; by Italian shipping, 1.94 per cent; by Austrian shipping, 1.57 per cent; by Belgian shipping, 1.27 per cent; and by all other shipping, 4.35 per cent. The analysis extending in the fiscal year 1914 to American imports and exports represented an aggregate value of $3,785,469,000.

Rock Island Track Elevation Work at Chicago

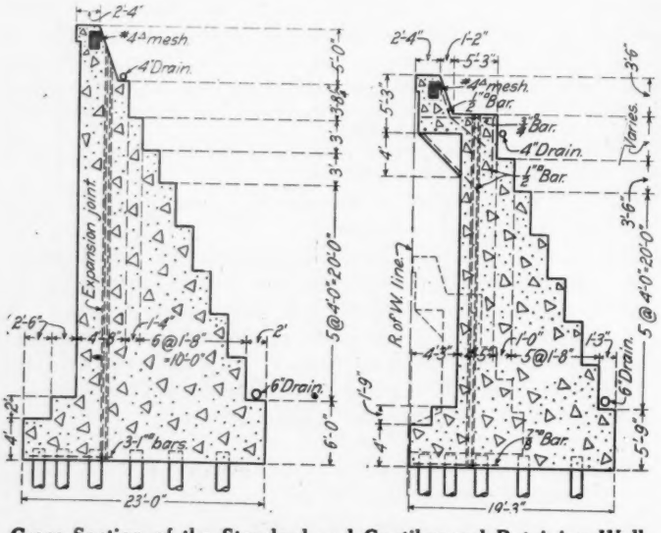
Unusual Progress Made in First Year's Work on an Eight-Year Program Involving an $8,000,000 Expenditure

Although the track elevation project which the Chicago, Rock Island & Pacific now has under way in Chicago involves unusual difficulties in the size and complicated character of the structures and the amount of traffic to be handled, the first two tracks on the first section of this project were placed in service on the upper level before the close of the first season of active work. To do this it was necessary to build one line of retaining



Looking South Over the Seventy-Ninth Street Crossing Before the Elevation of the Tracks of Either Road Showing Temporary Diversion South of Crossing

wall and seven street subways in addition to a three-level structure at the crossing of the Chicago & Western Indiana and Seventy-ninth street, involving a total concrete yardage of 73,000, and to place 231,000 cu. yd. of filling material without interruption to the heavy main line freight and passenger traffic of ten roads on the two lines, aggregating over 500 movements with

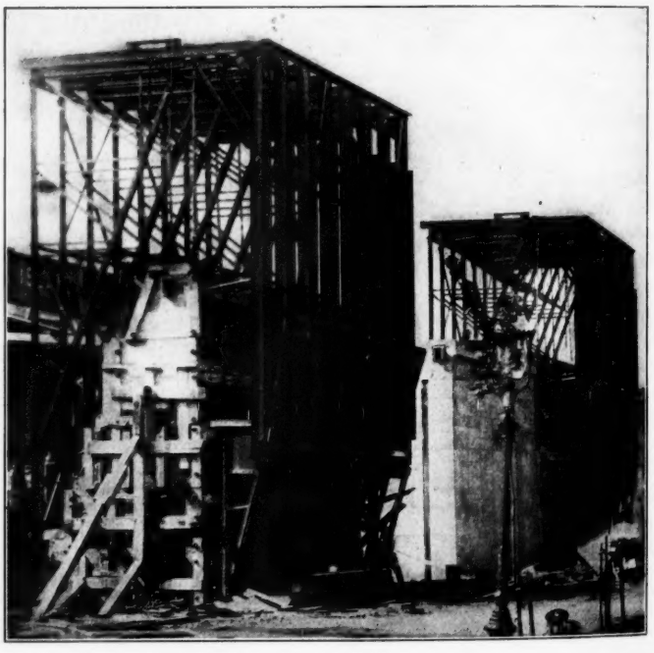


Cross Section of the Standard and Cantilevered Retaining Walls

about 7,000 cars in 24 hours over the Seventy-ninth street grade crossing.

As outlined in a description of the organization for this project in the *Railway Age Gazette* of March 13, 1914, this section including the main line between Seventy-second and Eighty-fourth street is the first item in a construction program covering about eight years' time and requiring an expenditure of over $8,000,000 to elevate the main line south to Ninetieth street and the South Chicago and the suburban branches. With the exception of the concrete pile driving and some portions of the steel erection, the work thus far has been handled by company forces under the chief engineer through a track elevation department and the program laid out at the beginning of the year was carried out with very little change. The remainder of the fill and subways and the west wall will be completed during the coming season and from then on short sections of the remaining lines that are under ordinance will be taken up in succession to complete the whole project in the specified time.

The first section was made exceptionally difficult by the presence of the Western Indiana crossing which required the design of a complicated structure, increased the necessary elevation considerably, involving high retaining walls, abutments and subway columns and added to the problem of handling the company's own traffic during the work, that of keeping trains moving over a very busy cross line and of changing both lines to



Two Sets of the Traveling Steel Forms Used in Construction of High Retaining Walls

temporary locations where interference with the work would be avoided.

Although some preliminary work had been done before, the work was not actively pushed until March 31, 1914, when the three main tracks of the Rock Island were shifted west a maximum distance of about 80 ft. at the Western Indiana crossing. A construction trestle was driven along the east side of the right of way, the fill placed from this trestle being kept from encroaching on the operating tracks by tie cribs which reached a maximum height of 18 to 20 ft. At the completion of the first track over the new grade in November the northbound traffic was turned over it, and a short time later the second track was put in service. The fill was made wide enough for a third track which is to be used in widening the fill and handling materials for completing the subways and building the west wall. At the time of the first shift of the Rock Island tracks, the four Western Indiana tracks were shifted south to make pos-

sible the construction of the footings for the north abutment and three of the four piers for the structure which carries the Rock Island over the Western Indiana and the latter over Seventy-ninth street. As soon as the work on the north end of the bridge had advanced far enough the four tracks were shifted back to the bays between the new piers and the south end of the bridge was then finished.

RETAINING WALLS

The retaining walls vary in height from 18 ft. up to 41 ft., and are of mass design. As rock is too far below the surface

One of the Steel Gondola Cars Fitted with Improved Runways Leading to the Mixer

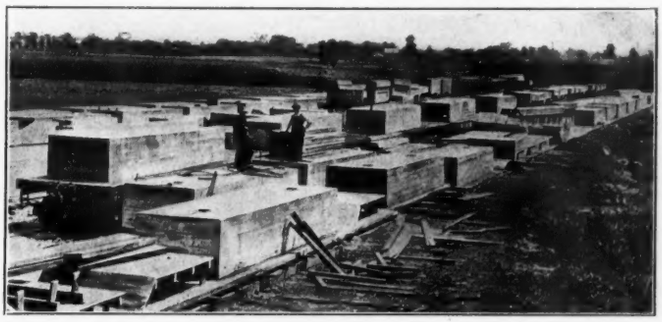
to be reached, all walls over 20 ft. high are founded on concrete piles. The footings for the walls, piers and abutments required 350,000 ft. of Raymond piling. These piles were loaded with 21 to 25 tons.

All telegraph, telephone and signal wires will be carried in a six-way vitrified clay duct which was embedded in the wall near the top. Two tile drains were provided, one 4-in. line on the first offset from the top and one 6-in. line approximately at the ground surface. These lines were laid with burlaped joints to accurate grade and were covered by coarse material. In addition, the back of the walls was waterproofed.

Where the width of right of way prevented the use of the ordinary section of wall on account of the extended toe, a special "gooseneck" section was adopted. The lower portion of this wall has the same section as the standard design, but on this gravity wall is carried a cantilevered top with the face of the parapet extending 1 in. beyond the extreme edge of the toe and 4 ft. from the vertical face of the body of the wall. This cantilevered section is of 1:2:4 concrete reinforced and supported at intervals of 12 to 13 ft. by concrete brackets. About 800 ft. of this type of wall was built.

In an effort to reduce the cost of concrete in these high walls and also to hasten their completion, movable forms supported on gallows frames were experimented with and proved so successful that they were used for about 60 per cent of the yardage. One set of timber forms and one of steel were provided, the principle of both being the same. With each of these forms it was possible to pour a complete section each day amounting to as much as 300 yd. in some cases. The wooden forms were designed for building 24-ft. sections, the set including two forms, one with bulkheads and one without, these being used alternately so that the sides of the latter could lap over the finished section at each end. The forms were suspended from a wooden gallows frame spanning the wall and running on rails on each side. The steel gallows frame was 35 ft. 3 in. high and the forms provided for a section length of 35 ft. The front and back sections of the frame were connected by a sliding joint to allow a variation in the distance between running rails from 13 ft. 3 in. to 20 ft. 6 in. The forms are tied together by rods running through tin tubes which were allowed to remain in concrete after the wall was finished, the ends of the holes on the outer face being filled with cement. The steel forms were made by the Blaw Steel Construction Company, Pittsburgh, Pa.

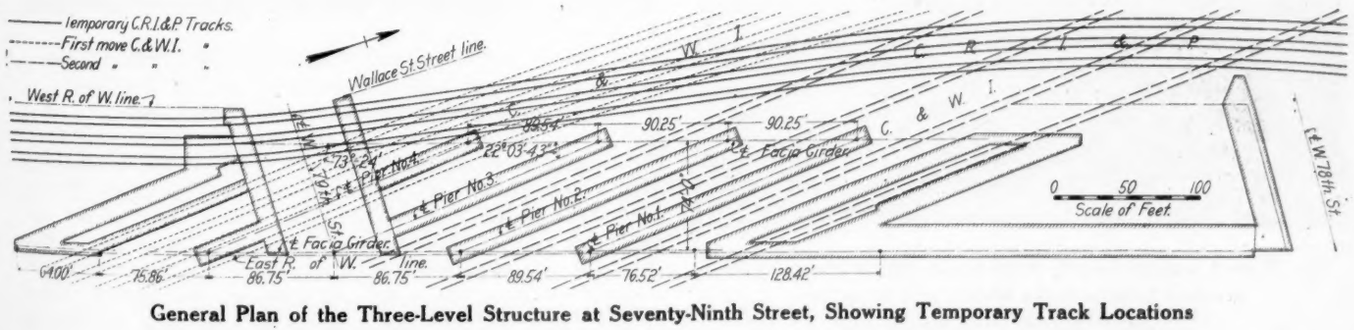
In studying methods to reduce the cost and increase the speed of the portable mixing plants used for the walls and abutments it was found that a considerable saving could be made by the use of a special runway on the gondola cars in which the concrete aggregate was shipped. With the separate side and cross planks previously used on these cars for wheeling it required from 40 min. to 1 hr. to remove the runways from one set of cars and replace them on another when loaded cars were switched in, the cost for this change amounting to $10 or $11. The improved runways which can be handled as a unit for each car were built up of three 3-in. planks 30 in. wide on each side with similar cross planks at frequent intervals on which the barrows are loaded. This equipment cost about $50 per car but resulted in an average saving in the cost of concrete of $0.07 per yd. through the decrease in the time of changing the runways and increased speed of the men in wheeling. It was sometimes necessary to wheel over five cars, the average time for a round trip of this length being about 3½ minutes.



A Portion of the Slab Yard

SUBWAYS

Although the Rock Island main line was previously elevated to Seventy-sixth street the change in grade had to be carried back to Seventy-second street to secure the necessary elevation over the Western Indiana at Seventy-ninth street. This involved the reconstruction of the Seventy-fourth, Seventy-fifth and Seventy-sixth street subways, and in addition the grade crossings at five streets were eliminated by the construction of new bridges. The steel girders in the three old bridges were removed, the abutments raised or new ones built back of the old, and new steel-encased columns supporting reinforced concrete cross girders and slabs erected. This concrete slab and ballasted deck type was also used for four of the new structures, the fifth—



General Plan of the Three-Level Structure at Seventy-Ninth Street, Showing Temporary Track Locations

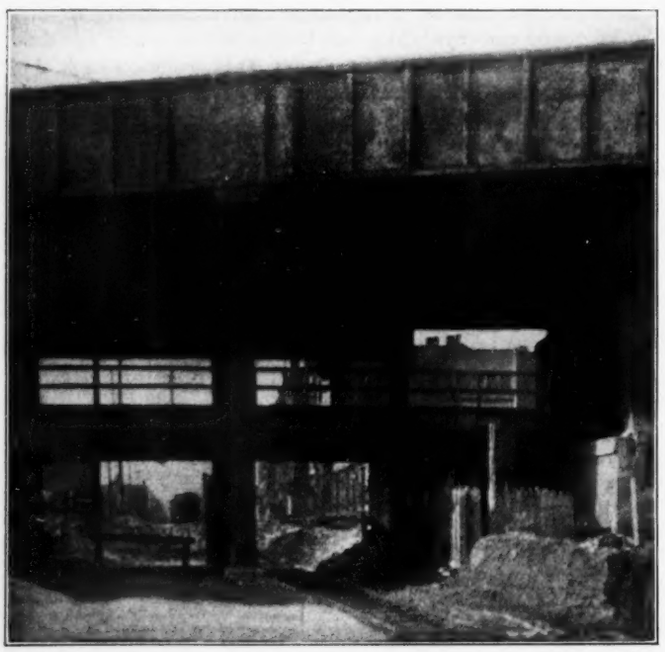
Seventy-ninth street—being carried under the Western Indiana bridge. Curb and center supports were provided at all streets.

The steel columns are carried on concrete pedestals supported by concrete piles and are encased in concrete, making them 2 ft. 6 in. square at the bottom, 2 ft. 1 in. under the capital and 3 ft. at the top. Horizontal braces were provided to stiffen the columns when necessary on account of the unusual height. The intermediate columns and all cross girders and slabs were cast in a yard in order to avoid the almost prohibitive cost of building falsework for such high structures. The end columns and facia girders and the braces were encased after erection.

General View of the Five-Span Structure Carrying the Rock Island Over the Western Indiana at Seventy-Ninth Street

placing the concrete around the assembled steel columns the encasement was poured up to the bead of the capital at one operation and this was allowed to set until the shrinkage was taken up before pouring the capital. The lifting hook pockets in the upper ends of the columns were filled with concrete after erection. The concrete encasing the braces was extended 1¼ in. into recesses in the sides of the columns.

The slab yard which is located adjacent to the material yard



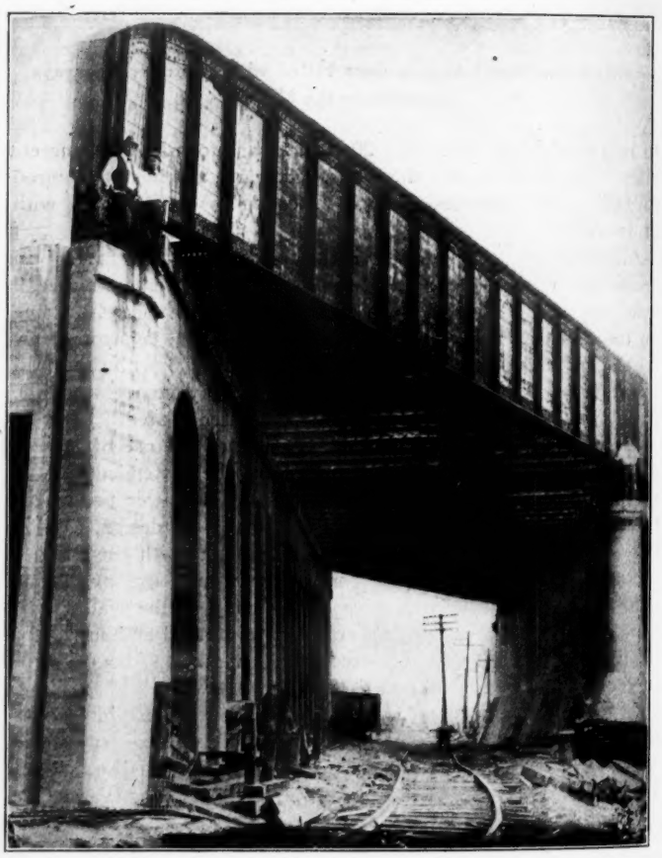
The Three Levels at Seventy-Ninth Street—Rock Island Above, Western Indiana in the Middle and the Street Partially Excavated Below

near Eighty-ninth street, was operated from about March 1 to October 1, during which time 3,972 yd. of concrete was poured. The mixer outfit was operated on two tracks reaching three rows of forms. The concrete was mixed by a ½-yd. Marsh-Capron mixer operated by a gasolene engine. With the exception of the subway cross girders wooden forms were used for all parts cast in the yard. The erection of columns, girders and slabs was handled with a derrick car rated at 75 tons which was able to handle one of the 50-ton slabs at a radius of 20 ft. A total of 2,800 cu. yd. of concrete was placed during the season in this way.

ROCK ISLAND-WESTERN INDIANA CROSSING

In connection with the elimination of grade crossings with streets on both the Rock Island and the Western Indiana in the vicinity of Seventy-ninth street crossing of the two roads, it was mutually agreed to separate the railway grades by carrying the Rock Island overhead, although the cost of the work was increased by this decision an estimated amount of $1,000,000. While the Rock Island had three tracks and the Western Indiana four on the ground level, provision was made in the plans for the new structure to carry five Rock Island tracks and 10 Western Indiana tracks. The two roads cross at an angle of about 17 deg., and the Western Indiana intersects Seventy-ninth street at an angle of about 85 deg.

In considering the substructure for this bridge it was found

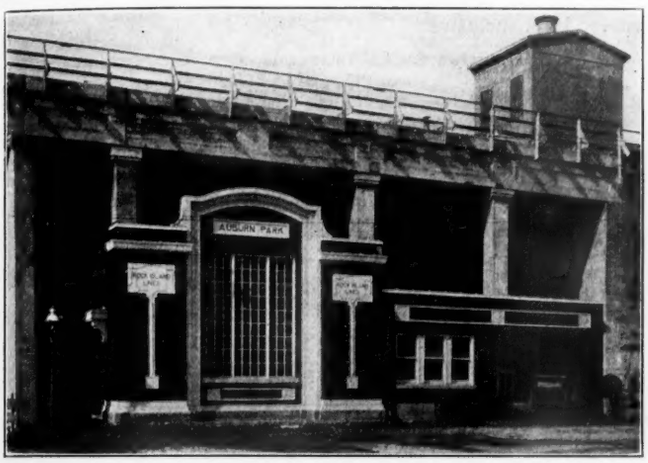


One Span of the Seventy-Ninth Street Structure Showing Main Girders, Floor System, One Abutment and One Pier Before Concrete Encasements Were Placed

that a mass abutment of the required height would contain over 3,000 cu. yd. of solid concrete in the intersection angle. To reduce this quantity and the resultant bearing pressure and the number of piles and also to provide space for a temporary Western Indiana track during construction, a shell abutment was adopted consisting of two rows of concrete columns with arched openings between, the space between the rows being spanned by concrete slabs. The wing walls are of similar construction, allowing the fill to spill through the opening. Reinforced concrete piers are used between the tracks with a minimum width of 3 ft. at the top and spread at the bottom to secure the necessary bearing on the concrete piles. Two of the piers at the south abutment could not be carried continuously for the full width of the bridge on account of the location of Seventy-ninth street under the Western Indiana tracks. The support for the upper

deck was made continuous over this street by locating steel columns in line with these piers and the abutment and also in line with the curb and center of street columns of the Western Indiana bridge extending down to footings below the street level. The maximum load on these columns is 848 tons, made it necessary to use caissons extending down 40 ft. to rock in four cases. Provision was made for the Western Indiana to connect the members of its steel structure to these columns wherever this arrangement was advantageous. The columns support concrete encased girders and are connected by concrete fenders.

The type of superstructure was adopted only after careful



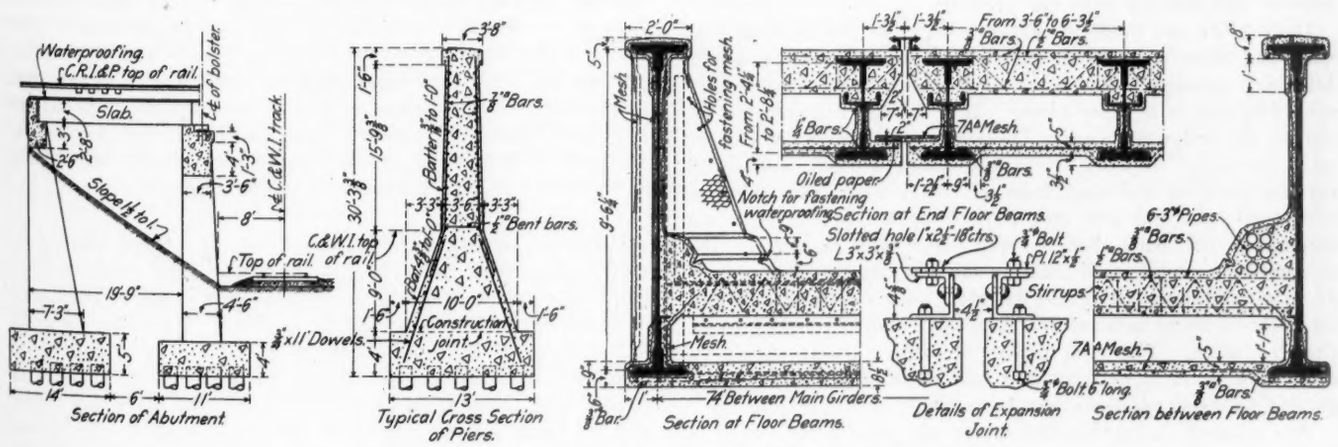
The New Suburban Station Located Under the Elevated Tracks

consideration of a number of designs. The allowable street depression, the required street clearance of 13½ ft., and the specified clearance of 17 ft. over the Western Indiana limited the elevation of the two upper decks of the structure very closely and in fixing the grade of the top deck it was estimated that every additional inch of elevation would cost $6,000.

The first type considered was a through girder structure with I-beam floor, the girders spanning two Western Indiana tracks, making them about 90 ft. long. The depth of floor in this design was only 3 ft. 11 in., but the girders required were so deep that their tops would have come above the car windows. A similar structure with 51 ft. 6 in. girders was designed with the same floor thickness and a girder depth that would eliminate this objection but the estimated cost was increased by 7 per cent, and the use of the maximum rolled sections which was necessary would have required the driving of field rivets 6 in. long through the flange of the girder. Five types without intermediate girders were considered, two having floor beams and stringers, two with trough floors and one with floor beams and concrete slab deck. The floor beam and stringer designs had a floor depth of 5 ft. 2 in. In comparing their estimated cost, with the first through girder type, therefore, it was necessary to include $6,000 for each additional inch of floor thickness in excess of 3 ft. 11 in. On this basis the cost for a structure with beams perpendicular to the piers was estimated to be 4 per cent greater, and for one with the beams perpendicular to the main girders 6 per cent greater than the first design. The skewed floor beams also would have had the disadvantage of difficulty in detailing and erecting.

One of the trough floors had a depth of 4 ft. 9 in. and the other 5 ft. 3 in. Again including the cost of the additional elevation these designs were estimated to cost 7 per cent and 10 per cent more, respectively, than the through girder bridge. The floor beam and concrete slab deck with a depth of 4 ft. 10 in. was shown to have an estimated cost of only 2 per cent more than the original design and less than any of the other types. This structure was finally adopted on the basis of first cost, absence of obstructions above the deck and ease of fabrication and erection.

The assumed live loading was Cooper's E-55. The floor beams have a depth back to back of angles varying from 2 ft. 4¼ in. to 2 ft. 8¼ in. and the spacing between beams varies from 3 ft. 6 in. to 6 ft. 3½ in. The reinforced concrete floor slab encasing the tops of these beams is 15 in. thick and is supported on Z-bars riveted to the web of the beams. These Z-bars were used in preference to angles, as they serve as stiffeners and also have a greater tendency to hold the concrete close to the girder web. The top of this slab is waterproofed with a five-ply coating covered with a layer of mastic. The expansion joints are located at right angles to the girders with an offset of one floor beam over the piers. These joints consist of a 2-in. open space covered by a plate with slotted holes supported on two angles bolted to the concrete on each side of the opening. The structure carries a minimum depth of ballast of 6 in. As a protection against the gases and locomotive blasts under the bridge a reinforced concrete slab with a minimum depth of 5 in. was provided, the reinforcing bars in this slab being supported on the lower flange angles of the floor beams and the concrete covering these flanges continuously. This slab was placed with cement guns and all exposed steel work was coated by the same process. While it is impossible to foretell how long this "gunite" will protect the steel under the severe conditions existing, it is estimated that it can be replaced at less cost than a coat of paint.



Details of Design of the Seventy-Ninth Street Bridge

The design of this bridge had to be pushed at utmost speed. Given the strain sheet in February, the fabricated steel was delivered June 15. The detailed plans were prepared in the office of the American Bridge Company, which had the contract for fabrication, at its Gary, Ind., plant under the supervision of an experienced designer from the Rock Island bridge department who was given charge of the squad assigned to this work and

who personally checked all important details on the sheets. As an example of the class of work required in this design, only 8 field rivets per ton of steel were driven. The bridge department also had a representative in the field during the erection of the bridge who kept in constant touch with the man at the mill so that each car of steel was loaded with the pieces in the order needed in erection. In addition to the time saved in erection this eliminated the rehandling of steel which usually must be unloaded from cars for temporary storage and picked up again when needed. The bridge was erected under contract by the Ketler-Elliott Erection Company, Chicago, using a locomotive crane which also switched the cars in and out. The heaviest girder weighed about 43 tons. Under the system in use this contractor was able to erect 1,100 tons of steel in six days.

STATION

The track elevation work made necessary the construction of a new suburban station at Auburn Park, just north of Seventy-ninth street. This station is one of the best originating points for suburban traffic on the main line and it was essential that the new building be convenient and adequate in its facilities. As the right of way on this section is fully occupied by the elevated line and a suitable site adjacent to the desired location would have been difficult to secure, a somewhat novel plan was adopted, the building being located at the street level under the tracks facing on the Seventy-eighth street subway and the street paralleling the east retaining wall. The accompanying photograph of this station shows how the tracks are supported over the building. Stairways from the Seventy-eighth street subway and from a special foot passageway at Seventy-seventh street lead up to the two island platforms between the tracks and a baggage elevator connects the station baggage room and the track level.

COST DATA

Detailed cost records on this work were unusually important on account of the division of expense between the roads, and in order to make the cost data of immediate value in directing operations a system was developed by which the books could be closed every night. The unit costs of all classes of work were computed every day, making possible a comparison of results at once and tending to check waste and reduce costs without interference with the progress.

Daily labor and material reports were filled out by each foreman and were received in the field construction office on the following morning. Seven of these sheets were furnished to each foreman in a paper binder each Monday morning for use during the following week. These reports showed the location and description of work, rates and hours worked, work done, material received and used, from which the labor cost, additional cost, total cost and unit cost were computed in the office and entered on the same sheet. From these daily reports monthly summaries were prepared showing the date, cost of labor, cost of material, additional charges, total cost, work done and unit cost, these sheets being indexed in a loose leaf folder according to the class of work. The final report on ledger sheets shows the date, item, work done, unit cost and debit, credit and balance, divided between additions and betterments and operation.

This work is being handled under the supervision of C. A. Morse, chief engineer, by R. H. Ford, engineer of track elevation, the bridge and masonry designs being prepared under the direction of I. L. Simmons, bridge engineer, and the station details by A. T. Hawk, architect.

Railway from Kem to Kola in Russia.—It is reported from Petrograd that the Russian cabinet has allocated the credit of $1,800,000 to the preliminary works for the construction of a railway from Kem to Kola on the Arctic ocean. It has also authorized a credit for preliminary works in connection with the building of lines from the region north of the Archangel-Vologda Railway to a point which will be selected as a port in the Government of Archangel.

LOCOMOTIVE SMOKE IN CHICAGO

The department of smoke inspection of the city of Chicago has adopted a new method of inspecting locomotive smoke in that city. Heretofore it has been the practice to assign several men to the specific duty of inspecting locomotive smoke at various times of the year. Under the new system the smoke inspectors are required to watch for locomotive smoke wherever they may be at all times. This eliminates any possibility of the railroads making special preparations during the period of inspection. Following is a list of the railroads in the Chicago district and their standing for the six months, from September, 1914 to February, 1915, inclusive:

Department Smoke Inspection, City of Chicago

Railroad		Number of observations	Engine minutes	Smoke units	Per cent density
1	C. & N. W.	4,064	5,233.5	1,613.75	6.17
2	N. Y. C.	720	691.5	218	6.35
3	A. T. & S. F.	302	373.5	125.25	6.77
4	C. G. W.	321	435.5	149.5	6.86
5	C. B. & Q.	1,563	1,599	598.5	7.49
6	I. C.	2,199	2,256.5	953	8.44
7	N. Y. C. & St. L.	192	222.5	94	8.46
8	C. M. & St. P.	2,054	2,550.5	1,123	8.77
9	Pennsylvania	1,327	1,815.5	800.25	8.82
10	M. St. P. & S. S. M.	174	201	90.25	8.98
11	M. C.	249	295	135	9.15
12	Grand Trunk	387	545	263.5	9.67
13	C. & E. I.	257	286.5	139.25	9.72
14	B. & O. C. T.	379	617.5	309.75	10.03
15	C. I. & L.	175	187	94.75	10.14
16	B. & O.	197	306	175.5	11.47
17	C. R. I. & P.	1,077	1,091.5	637	11.67
18	I. H. B.	29	43.5	26	11.95
19	Ill. Northern	71	87.5	55.5	12.69
20	C. & A.	586	641	419	13.07
21	C. & W. I.	521	642.5	422.5	13.15
22	Pere Marquette	114	121	82.25	13.59
23	Erie	220	257	186.5	14.57
24	Wabash	403	555.5	406.5	14.64
25	C. & O.	34	31	23	14.84
26	Belt	178	232	195.5	16.85
27	C. I. & S.	29	28	29.5	21.07
28	C. J.	810	1,097.5	1,219.25	22.22
29	C. R. & I.	97	132	157	23.79
	Total	18,729	22,576	10,742.75	9.52

It will be noted that the average density for all the locomotives is 9.52 per cent. This compares favorably with the other seasonal readings, and goes to show how thoroughly the railroads in Chicago have the smoke problem in hand. The average is lower than in the summers of 1912 and 1913, and the autumn of 1912, and is higher than the autumn reading of 1913 and the summer reading of 1912, they being 5.79 per cent and 6.30 per cent, respectively. The Chicago & North Western Railway has the best performance for the first time since 1911. In previous inspections it held third, second and fourth places, respectively, and previous to 1913 it was about at the middle of the list.

Military Traffic on English Railways.—Some idea of the vast movement of troops and naval and military stores may be gathered from the remarks of the chairmen at the recent annual meetings of some of the English railways. First place is given to the London & South-Western, which company ran, up to December, 4,913 loaded specials, necessitating about 15,000 extra trains. The Great Western had run 6,684 special military trains, and the Great Eastern, up to the end of December, 2,793 special trains. The Great Central had carried upwards of 250,000 soldiers, in addition to those on short leave, more than 16,000 horses and some 1,400 service vehicles. The London, Brighton & South Coast has run over 4,400 specials and carried nearly 500,000 tons of government stores and supplies. The Metropolitan has conveyed 2,738 troop trains, and when the first expeditionary force was being moved, passed 58 troop trains on one day over the line, in addition to all the ordinary traffic. During the first fortnight in February, 2,935 goods trains were passed over the Widened Lines. The Great Southern & Western, when the first expeditionary force was being moved, ran 172 special trains, containing 60,000 men, 10,000 horses, 200 trucks of baggage and 1,100 cars of guns.

Troublesome Problems of Terminal Operation*

Necessity for Studying Conservation of Equipment, Proper Carding of Cars, Selection of Freight Solicitors

THE CONSERVATION OF EQUIPMENT

By J. E. Campbell

Freight Agent, Pittsburgh & Lake Erie, Bessemer, Pa.

The terminal expense consumes a very large part of every railroad's revenue and in some cases, such as short haul business between adjacent terminals, the operating expense is nearly all terminal expense. A careful study of terminal costs and a determination to reduce them to the lowest possible figure will probably tend more towards the prosperity of the carrier than any other effort that may be made. As traffic conditions are continually undergoing change the terminal problems are also presenting new features. Those methods which would have been the most efficient possible in a given yard ten years ago would not meet the requirements of the company and public in that yard today. This is true of every yard in the country.

The superintendent of terminals, or yardmaster, should strive to secure the largest possible results from each crew or unit of service under his jurisdiction. There should be a careful adjustment between day and night work, for the more evenly the work is divided between the two periods the fewer locomotives will be required. There is much work that can be done to the best advantage at night. Warehouse sidings, team tracks and private and industrial sidings should be switched and put in shape at that time. They will then be ready for business the first thing in the morning and much undesirable friction will often be avoided. If owners of private sidings, and industrial tracks, and agents in charge of warehouse and team tracks are educated to plan their work for a whole day it will often be unnecessary to switch such tracks until the next night. At least, by careful planning the day work on such tracks can be reduced to a minimum. Switch orders or a switching list for such tracks should be furnished each evening by the person in charge. In case of industries operating night shifts a similar work order can be furnished each morning. Much can be accomplished by educating patrons to plan their work so that unnecessary shifts will not be required.

Each crew should have its own routine work and should be trained to do that work quickly and promptly. The men should also distinctly understand that their work is not done when a particular routine has been accomplished, but that they should be ready to relieve the pressure in any other part of the yard where it may be unusually heavy. Efficiency does not result when one crew is idle and another overcrowded with work.

All work should be carefully planned. If it is necessary to switch a siding do not take out the loads, then come back and take out the empties, and a little later return a third time to place other loads and empties. Each crew should be taught how to do its work with the fewest number of moves and switches, for needless switching requires time and costs money. Empty cars should be placed upon the proper storage tracks when unloaded, and likewise loaded cars should be placed on the proper tracks for outbound trains. If the yards are of sufficient size outbound trains should be made up as cars are loaded and weighed, or otherwise brought into the yard. It is needless work to have such loads all placed in a storage yard and then switched by another crew to classification yards.

Whenever it is possible inbound loads should be delivered direct to the unloading tracks. Much can be accomplished in this direction where large consignments of bulk freight are arriving, such as ore, coal and coke for furnaces, grain for elevators, and freight for vessels at docks. Where yards are of a character that will permit, incoming trains can just as well deliver cars where they will be unloaded without additional expense by the company as to place them on a storage track for a yard crew to handle a second time. Pick-up locals can place many cars on arrival within the terminal district, and cars for connections can often be delivered direct to interchange tracks without extra handling.

It should be the aim of the yardmaster to forward every outbound load in the first train possible. This means much for his company. It gives the patrons of the road better service, it saves per diem on foreign cars, earns per diem sooner on home cars going to connecting lines and above all helps to keep the yards clear. The importance of keeping all loaded and empty cars moving cannot be overestimated. A congested yard multiplies expense rapidly and a few hours will sometimes disorganize the best managed yard if cars are not moved out when they should be. In yards where a large number of cars of a particular class, such as grain cars, coal cars, ore cars, etc., are made empty, they should be forwarded as quickly as possible. This not only is necessary to prevent congestion but to secure the greatest car efficiency possible.

The conservation of equipment is a very important function of the man in charge of any freight terminal. This is not a matter to be left in the hands of the superintendent of car service or car distributor. It is very largely a matter for the local yardmaster to regulate. While this part of the work may not show up in the expense account directly connected with his yard, and it may often be necessary to do work for which no direct credit will be received, yet it is work that greatly tends to the prosperity of the company. Foreign cars under per diem should be moved without delay. These cars often come to the road in switching territory and the per diem paid while the empty car is delayed in terminal yards consumes all or more than all the revenue derived from the shipment loaded in the car when received. In these days when there is a great demand for first-class box cars, such cars should not be loaded with rough freight when other cars are available. It often happens in time of scarcity of equipment that they are loaded with rough freight and shipments of high class freight are lost through the inability to furnish cars.

All foreign cars should be loaded and handled in accordance with general per diem rules so far as it may be advisable under conditions existing at any particular time. Where there is sufficient room empty cars should be classified on different tracks and held ready for prompt loading when required. All shop cars should be disposed of promptly; and if under load moved to the shop track promptly in order that shipments may not be unreasonably delayed. Where it is necessary to secure special equipment for outbound loading or to bring supplies from other parts of the road the requirements of patrons should be anticipated in order that there be no delay in furnishing cars. At competitive points the failure to furnish cars promptly when required often results in business moving by competing lines. Good judgment in this matter is a prime requisite as in all other matters relating to the conducting of the yard.

An important adjunct of every yard is a corps of well-trained clerks who will keep a correct check upon its operation. They should be taught that it is not sufficient to take the numbers and initials of cars in the yard but that they should know why the cars are there. No-bill cars should be investigated promptly and the necessary billing should be secured without delay. In case of hold cars the person ordering cars held should be communicated with frequently in order that they may not be lost sight of and that their release may be secured quickly. Errors in numbers, routing, and other details should be watched for and the proper corrections secured at once. The yard clerks

*Abstracts of several of the papers presented in the contest on Operation of Terminal Yards.

should see that the person in charge of the yard has every detail of the yard at his command on a moment's notice. A large accumulation of no-bill or hold cars, and cars with erroneous billing can soon develop if all of these details are not followed up with system and despatch.

ATTENTION TO THE DETAILS

By J. R. Hamilton

Terminal Trainmaster, Delaware, Lackawanna & Western, Buffalo, N. Y.

A yardmaster must work enough power to do all the important work each day. In this connection the unimportant work is hard to designate. As an illustration, the man in charge of the ash-pit may ask to have the loads pulled out and empties set in. Apparently this is an unimportant job, but he may have neglected to order the work done at the proper time. It is not done, the assistant yardmaster saying, "We will do that tomorrow." During the night the ash-pit becomes blocked, engines are delayed waiting to have fires cleaned, trains are probably held waiting for engines. The night yardmaster must take one of the regularly assigned engines from important work, and go and look up empties. Not knowing where to find them as promptly as the regular day man, he loses time with the engine. Hence the unimportant job becomes important.

All business offered by connections should be moved from the regular interchange tracks with little delay and placed on the classification tracks, where the cars should be handled in their turn as they arrive. Some of the worst delays come on account of the assistant yardmaster in charge of the classification yard clearing tracks which will be to his greatest advantage, while neglecting business that arrived at an earlier hour. All business, except that coming from connections, should be gathered up after the day's loadings have been completed. It is not economical to run after one car at a time, unless it be to get into a train which, if missed, would cause a bad delay and possibly be the cause of the company losing the next shipment to the same point. In these days, when the traffic department has nothing to offer except service, it might be considered good judgment to make special movement of an old car of scrap, wood or iron, as the party controlling such a shipment might be in position to give or withhold important business.

Trains should be made up properly classified through to destination, and when business will not suffer more than 24 hours' delay, I believe, making up full trains to one destination is an economical way to handle business.

Yard clerks are important factors in the proper handling of any terminal, and the right kind are scarce. A yard clerk should be a chap who is constantly looking for things, not a fellow who sits around waiting to be told what to do.

Car records, if properly kept, are money savers, and if not properly kept up they should not be kept at all. Interchange reports should receive considerable attention and the yardmaster should see the clerks who do this work as often as possible. Call them together at least once a month for a conference, and in order not to have the night men lose any time or rest invite them to breakfast with you at some nearby restaurant at the company's expense. It will be worth more to the company than if the same amount was added to their pay, and the benefit derived from such gatherings cannot be overestimated. It has been proved that such gatherings are beneficial for other classes of help, hence, why not for yard, interchange and car record clerks? You should be just as close to the despatcher and agents, who must depend upon you wholly, as you are to the roundhouse or general shop foreman, upon whom you must depend.

Don't refer anything to the superintendent which you are paid to look after. There will be enough matters referred to him to keep him busy. Educate those around you, such as agents, roundhouse foreman, car foreman, bridge and building foreman and general track foreman, to come to you first when they want cars moved. Don't put them off until the next day too often or they will go to some one else and you will be compelled to do what was requested. Give them the same reason for not moving their cars that you will give the superintendent when he asks regarding the delay.

All who have to do with writing orders, which will require the use of a switch engine, should be familiar with conditions, and also realize that a switch engine cannot be kept standing around waiting for something to show up. Foremen of different departments frequently do not figure ahead; hence, when they want anything it must be *rush*. A very large portion of such orders could be eliminated with proper attention on the part of those in charge.

CLASSIFYING INDUSTRIAL TRAFFIC FOR DELIVERY

By Z. Middlebrook

Trainmaster, Atlantic Coast Line, Florence, S. C.

The successful and economical operation of a large terminal is due in a large measure to the character of the man in charge. He should be affable as well as capable; should know the terminal and the patrons, and should pay the patrons a friendly call periodically. Such calls will keep him in touch with patrons as well as with his force and will quite often avoid a complaint which would sound quite ugly by telephone or mail. It is much easier to pacify a patron by discussing his troubles personally with him than to remain in the office until he has taken a strong position by mail.

To operate a large terminal successfully and economically, it is necessary to divide the industrial section into districts, each district to embrace as much territory as can be handled by one engine, and to have a schedule for each engine to work by so that shippers and consignees will be ready for the necessary shifts when the engine reaches its place of business. This schedule should be followed as closely as for a main line train.

The inbound yard should have tracks assigned for each district and men working engines in that yard should know each district and classify cars so that cars for each industry or consignee will be together and in the order in which they may be reached by the industrial engine, so that they may be placed promptly, as a great deal of industrial work has to be done on or across streets and the less switching done the better. In terminals where business warrants, it expedites the work to use an interchange engine to handle cars between the yard and the several districts. When such an engine is used it should run on a regular schedule and interchange with district engines at designated points.

Railway Construction in Peru.—The ambitious scheme once entertained by the Peruvian government, of constructing 3,000 miles of railway, and thereby bringing up the total mileage of the country to something over 5,000 (the present length does not much exceed 1,870 miles), is now said to have been put aside for the time being, owing to severe financial stringency. Some new construction is being proceded with nevertheless. The Amazon-Pacific line is getting along slowly. This line starts from a point on the Cerro de Pasco Railway, running thence to the port of Pucalpa, on the Ucayali river. Its length will be about 280 miles. When completed, it will open up the department of Loreto, and afford an outlet for the rubber, timber, tropical products, and extensive deposits of coal which are found in the neighborhood. The government has promised to subsidize the railway to the amount of $9,735,000, but the uncertain position of the national treasury and frequent changes in the industry make it seem improbable that this agreement will be carried out in its entirety. A new Transandine railway has also been surveyed, the contract for construction having been let to connect the Pacific port of Payita with points on the Maranon and Huallaga rivers, which are tributaries to the Amazon.

Locomotive and Train Supplies on the Frisco

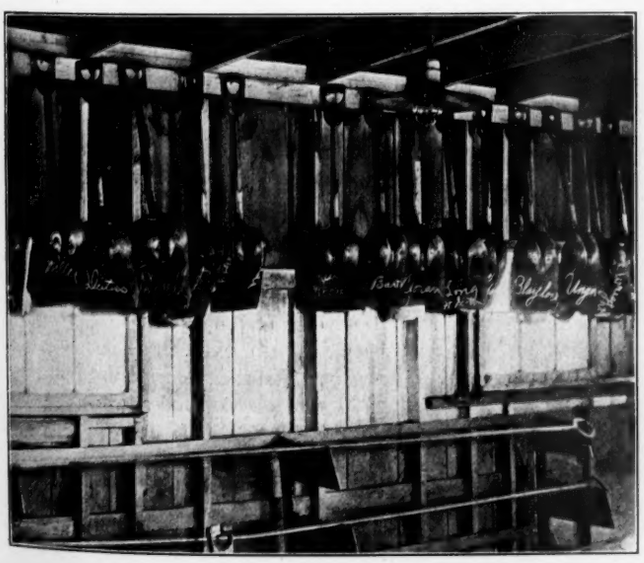
Standardization and Systematic Attention Have Improved Service and Reduced Expenses for These Accounts

The cost of locomotive supplies forms such a comparatively small proportion of the operating expenses, and these supplies are scattered over such a wide territory, that on many roads they have been overlooked in the handling of more important matters. However, systematic attention to this feature pays well not only in the resulting economy, but also because of the time and labor which may be saved in emergencies and in

Interior View of Engine Supply House

break-downs on the road due to having a complete and first class tool and supply equipment at hand.

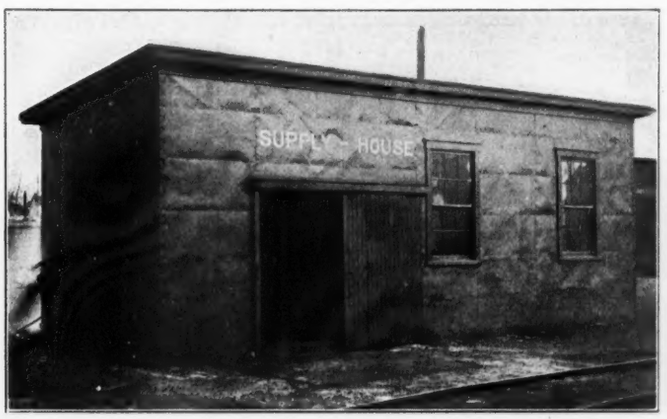
In approaching this problem the St. Louis & San Francisco found that the cost of engine supplies during the past few years had averaged about 27 cents for every 100 locomotive miles. This is about the average for all of the railroads in the United States, but it was predicted on a basis of thorough investigation



Scoops Stored in Engine Supply House

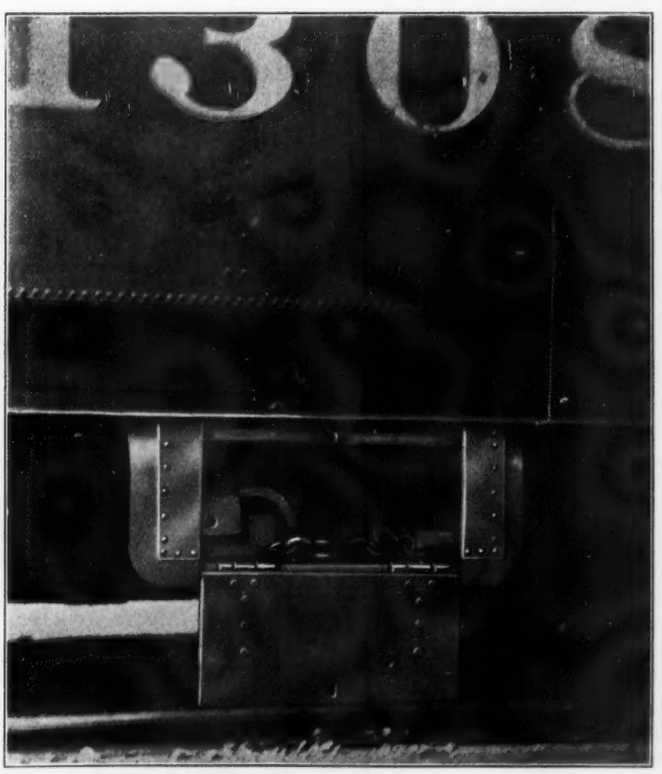
and study that it could be materially reduced by standardizing the locomotive supplies and systematically checking and keeping the equipment on each locomotive complete and in good condition. Within a period of less than a year since the system was inaugurated the costs have dropped 25 per cent, and it is confidently believed that within another year it will be possible to reduce them to an average of 18 cents per 100 locomotive miles.

The steps which were taken to accomplish this result are of more than ordinary interest. Day and night supply men were appointed to look after the engine and train supplies at each engine terminal. The night man reports to the day man, but is also under the direction of the night roundhouse foreman. All employees who fill grease cups and lubricators and look after the drying of sand also report to the day supply man.



Typical House for Storing and Repairing Engine Supplies

Tools and oil cans which had been discarded were gathered together and it was found possible to repair and place a great number of them in good condition at a small expenditure. Steps were then taken to standardize the equipment on each locomotive and see that tool boxes were provided in which the various items of equipment could be arranged in a systematic



Engine Supply Box Under Tender Tank

manner and so that they could be checked over rapidly and accurately by the supplyman or tool checker at each terminal. Not only does this checker see that a full complement of tools is maintained on each engine, but he is expected to keep these tools in good repair. Supply houses have been constructed at the principal terminals, in which the locomotive equipments are stored when not in use and which the repairmen use as work shops and for carrying surplus stocks. These houses are cheaply but substantially constructed of scrap lumber and discarded metal car roofs. The illustrations give some idea

ST. LOUIS AND SAN FRANCISCO RAILROAD
JAMES W. LUSK, W. C. NIXON, W. B. BIDDLE, Receivers

STANDARD CABOOSE EQUIPMENT LIST

ARTICLES		Total Value	Allowed	On Hand	Surplus	Shortage
Axe and Handle		.67	1			
Bar, Steel Jack		.45	1			
Bar, Pinch		.53	1			
Barrel, Water with Cover		1.25	1			
Basin, Wash		.23	1			
Block, Jack		.10	1			
Brasses, 7" No. 10	10lb	2.55	2			
" 8" No. 11	13lb	3.32	2			
" 9" No. 12	20lb	5.10	2			
" 10" No. 13	25lb	6.38	2			
" 6" No. 30	9lb	1.15	1			
" 7" No. 31	8lb	2.04	2			
" 6" No. 32	8lb	1.02	1			
" 7½" Pullman	19½lb	2.49	1			
Broom		.21	1			
Bucket, Galv.		.24	1			
" Dope		2.05	2			
Burners, Cupola		.18	2			
" Marker		.13	2			
" No. 2 Side Lamp		.21	2			
" Lantern		.10	3			
Case for Fusees		.25	1			
Chains, Switch		6.16	2			
Chimneys, Cupola		.06	1			
" Side Lamp		.11	2			
Chisel, Cold		.15	1			
Cushion, Short		2.00	2			
" Long		11.00	4			
Flags, Red		.19	2			
Fusees, For Main Line 10 min.		1.63	24			
" " Branch " 5 min.		.55	12			
Filler, Lamp		.29	1			
Gaskets, Air Brake, For Main Line		.10	6			
" " " Branch Line		.05	3			
Globes, Lantern, White—Extra		.26	2			
" " Red "		.34	2			
Hooks, Cotton, in Cotton Ty.		.18	2			
" Packing		.04	2			
Hose, Air	1⅜"	4.50	3			
" Dummy	1⅜"	2.40	2			
" Tail		3.00	1			
Irons, Packing		.08	2			
Jack, 6"		2.25	1			
Keg, Water		.60	1			
Keys, A. C. Draft		2.00	2			
Knuckles, Standard		12.12	6			
" Emergency, For Main Line		7.00	2			
" " " Branch Line		3.50	1			
Lamp, Cupola		3.94	1			
" Tail		9.00	2			
" Side		2.17	2			
Lanterns, White, Complete		2.22	4			
" Red, "		1.96	2			
Matches, Box		.01	1			
Mop and Handle		.17	1			
Nails, 8D	Lbs.	.02	1			
" 20D	"	.02	1			
Oil, Headlight	Gals.	.13	2			
" Signal	"	.28	1			
Pins, Knuckle, Standard		1.32	6			
Poles, Cotton, In Cotton Ty.		1.75	2			
Rope, Switch (wire)		10.12	1			
Saw, Hand		.56	1			
Shovel, Fire		.12	1			
" No. 2 Track		.54	1			
Torpedoes, For Main Line		.21	24			
" " Branch Line		.10	12			
Waste, Cotton	Lbs.	.03	½			
Wicks, Cupola and Stencil Lamp		.02	6			
" Lantern and Marker		.02	12			
" Bracket Lamp		.01	6			
Wrench, Monkey		.67	1			
Total Value, Main Line		122.45				
" " Branch Line		117.86				

July 1st, 1914. E. D LEVY, General Manager

In the intelligent and economical care and use of tools and supplies, as well as other company property intrusted to their charge, employees are furthering their own interest and advancement

Standard Equipment List Which Is Posted in Cabooses

of their construction and the arrangements for repairing and storing the material.

The supplyman meets each locomotive on its arrival at the cinder pit and checks the equipment which it carries with a standard tool list, which is reproduced in one of the illustrations. The crew is asked for an explanation as to any missing articles. The light equipment, including the engineer's tool kit, oil cans and scoops, is removed and placed in the supply house, where it is cleaned and repaired if necessary. The heavier tools and such supplies as are designated as permanent equipment are locked or sealed in tank boxes to prevent their removal from the engine while it is in the engine house. The hit-and-miss method of carrying jacks and heavy tools on the top of the tank back of the coal space has been done away with and a box opening outward has been placed under the tender side sill near the middle for the storage of these heavy and infrequently used articles, including switch chains, jacks, frogs, brasses, air hose, etc. As the box containing this equipment is sealed, and this seal is only broken when occasion arises for using some of the contents, it does not have to be checked and inspected after each trip. The location of the box makes these heavier supplies easily accessible when they are needed and allows of their being so easily replaced that there is little likelihood of their being left behind after use. The supplyman replaces the light equipment on the locomotive as it passes the cinder pit on its way to the train.

The scoops are always maintained in first class condition, as the supplyman examines them carefully after each trip and

ST. LOUIS AND SAN FRANCISCO RAILROAD
THOS. H. WEST, W. C. NIXON, W. B. BIDDLE, Receivers

Supply Foreman's Check Sheet
STANDARD TOOL EQUIPMENT FOR LOCOMOTIVES

Engine No._____ Terminal_____ Date_____

	Permanent Equipment.	Out	In
	Water glass		
	Water glass guard		
	Shaker bar		
	Slash bar		
	Clinker hook		
	Coal pick		
	Scoop shovel		
	Emergency scoop		
	Gauge lamp		
	Water glass lamp		
	Lubricator glass guard		
	Bell cord (cotton)		
	Back curtain		
R	Classification lamps		
R	Green flag		
R	White flag		
	Red flag		
	Broom		
	Arm rests		
	Ice box		
	Water jug		
	Squirt hose		
R	Hot-box hose		
S	Push pole		

	Permanent Supplies.	Out	In
R	Tender truck brass		
	Six fusees		
	Six torpedoes		

	Permanent Tools to be Carried in Tank-box.	Out	In
	Pinch bar		
	Ratchet jack		
	Switch chain		
	Rerailing frogs		
R	Wood block for guides		
R	Wood block for crank pins		
R	Wedge for raising wheels		

	Engineer's Kit.	Out	In
	Two-pound wedge peen hammer		
	Packing hook		
	Packing iron		
	12-inch monkey wrench		
	18-inch monkey wrench		
	18-inch pipe wrench		
	Double-end open wrench		
	Rod set-screw wrench		
	Coal chisel		
	Cape chisel		

	Tinware.	Out	In
	Water bucket		
	Two one-half gallon fillers		
R	Two-gallon can		
	Two hand oilers, one-quart		
	Boiler compound bucket		
	Two torches		
	Two drinking cups		
	Red lantern		
	White lantern		
	One-gallon can headlight oil		

"R"—Articles for Road engines, only.
"S"—Articles for Switch engines, only.

Engineer.

Supplyman.

Fireman.

Form for Checking Engine Supplies

trims up the edges if they are worn or damaged. One of the illustrations shows the way in which these shovels are stored in the supply house, and it will be noted that each one has a name on the scoop. This is because the firemen find that they can do better work when they have the same shovel on every trip and they insist upon the supplymen keeping them separate. If the supplyman notices an oil can, a marker or a lantern slightly damaged he immediately repairs it, thus greatly decreasing the expense of maintaining these articles and adding to their life.

It was noticed in visiting the supply houses that each supplyman had accumulated a stock of spare parts, in good condition, of one kind or another from discarded or badly damaged devices. These extra parts are used to great advantage in making minor repairs, such as those mentioned above. The supplyman must issue the requisition for new material, which is kept in the storeroom rather than in the supply house in order that the old material may in all cases be used first.

The supplyman is required to report promptly to the general

foreman all cases of neglect on the part of enginemen properly to care for equipment. Supplymen are also expected in their leisure time to pick up any neglected supplies, serviceable or scrap, which may be noticed in the vicinity of the supply house or in making trips over the company property. Serviceable material should be returned to stock; and at the end of the month, any surplus of the various items that have accumulated during the month should be turned back to the store with the regular form of credit to the supplymen's operating accounts. By handling in this way, not only is an asset created, but supplies are made available for some other part of the system where they are actually needed.

At the end of each month reports of what has been accomplished by each supplyman are distributed to all interested. These show the total cost at each terminal, the total credits and the actual net cost for supplies, with special mention of those making the greatest savings for the month.

TRAIN SUPPLIES

Supplies carried in the caboose are handled in the same way as the engine supplies and by the same men. The only exception is that the supplies are not removed at the terminals; instead a standard list (see illustration) is posted in the caboose for the information of the trainmen as well as the supplymen, and the supplyman periodically checks the equipment, showing the amount on hand, the shortage and the surplus, returning the surplus, if any, to the store stock with a form of credit to the caboose equipment account.

It will be noted that the cost of each of the items is shown on the train supply check list. This is in accordance with the general campaign of education on the Frisco, the fundamental idea being to promote a more intense interest on the part of every employee in the operation and welfare of the property. The supplymen, in particular, are thoroughly posted as to the cost of all of the materials which they handle, and the way in which they apply this knowledge in the more efficient and economical handling of these supplies is specially noticeable.

The scheme for handling caboose supplies has been in effect for three or four months, with good results, and it is expected that as favorable a showing will be made as in the case of locomotive supplies.

All of this work is carried on under the jurisdicton of the chief purchasing officer, N. M. Rice, who has charge of stores as well as purchases.

THE FEDERAL VALUATION OF JOINT FACILITIES

By Richard J. McCarty

Chairman, Valuation Committee, Kansas City Southern

The purpose of this inquiry is to determine whether the federal valuation of the property of a subsidiary terminal company should be treated as a separate and independent thing or whether it should be distributed to the proprietary carriers in proportion to the interest of each. To place the problem in a clear light, the well known causes and conditions which lead to the use of a subsidiary terminal company will be set forth in general terms.

In order to meet the demand for minimum delay and expense to the public in receiving, shipping and transferring freight as well as the public demand for more comfort, greater convenience and less expense in traveling, it is often necessary for two or more connecting carriers jointly to construct, maintain and operate the suitable facilities. This naturally requires that the interest of each carrier shall be clearly defined; that the cost of construction and equipment shall be kept separately; that the expense of maintenance and operation shall be accurately determined and apportioned and that all conflict and confusion from joint use shall be avoided. The most practicable way of meeting all these conditions is to organize a subsidiary company to take title to the joint facilities, then to define the interests of the carriers by ownership of its capital stock and cause the subsidiary company to maintain and operate the facilities for the benefit of all concerned.

As a rule, the principal services rendered by the subsidiary company are performed for the proprietary carriers at cost and its total net returns from station privileges, switching and other public services rendered as an independent company is negligible when compared with a fair return upon the investment. Consequently, the subsidiary company generally shows a deficit which the proprietary carriers must make good.

Considered as an independent carrier, the subsidiary company is entitled to a fair return upon the so-called "fair value" of the facilities. For reasons stated, however, its operating resources are limited to its small net returns, plus the payments at cost by the proprietary carriers for services rendered to each plus their contributions for making good the amount necessary to meet taxes and fixed charges, the total of which is naturally less than a fair return. Moreover, if the subsidiary company is treated as an independent carrier, each proprietary carrier would be entitled to earn with its own property, with respect to the facilities in question, only sufficient to pay at cost for the services rendered by the subsidiary company and make good its own proportion of the deficits. As a result, nobody would receive a fair return upon the amount invested in the terminal facilities.

The only practicable remedy for this condition is for each proprietary carrier to add to its own valuation its undivided interest in the valuation of the joint property; to include in its net returns its proportion of the net returns of the subsidiary company and to treat the interest on the bonds of that company guaranteed by it as fixed charges.

As against this it might be held that should the amount invested in the joint facilities be represented principally by the bonds of the subsidiary company, the amount invested by each proprietary carrier in the capital stock would be comparatively small and the return upon that amount would be too great. The answer is that the principal and interest of all bonds of the subsidiary company must then be guaranteed by the proprietary carriers, in some cases both jointly and severally, so that the liability of each carrier would be as great if not greater than with respect to its own outstanding bonds. The objection, therefore, can be no more valid than if urged against including in the valuation of any railroad property all proceeds of bonds invested therein.

It might also be objected that to add to the valuation of proprietary carriers the valuation of a subsidiary terminal company would be a duplication. The answer is that every such duplication may readily be avoided by disregarding the subsidiary company in so far as valuation is concerned and making a record to that effect.

There are, no doubt, other specious objections to including in the valuation of a carrier its undivided interest in the valuation of a subsidiary terminal company, but none that might stand in the face of the following facts and considerations:

1. The subsidiary company is used to meet a public demand for better and less expensive service and is the best means available for that purpose.

2. Towards meeting this demand a carrier may enlarge and improve its own terminals even though this means may not be the best. In this case the right of the carrier to the valuation of the enlarged and improved facilities would be unquestioned.

3. The use of the best means to meet a public demand cannot impair any rights which a carrier has through the use of inferior means to meet the same demand.

In view of all that has been set forth it seems clear that the valuation of the property of a subsidiary terminal company should be divided among the proprietary carriers in proportion to the respective interest of each.

Railway Service in Belgium.—Through train service, with sleeping and dining cars, has again been established between Berlin and Brussels.

Hearing on Western Freight Rate Advances

Testimony on Rates on Meat Packing House Products, Livestock, Hay, Cotton Piece Goods, Coal and Coke

Testimony of railroad officers as to the reasonableness of the proposed advances in freight rates on livestock, fresh meats, packing house products, hay and cotton piece goods occupied the hearing before Commissioner Daniels at Chicago last week on the application of the western railways for advances in a number of their freight rates, and this was followed on Tuesday, Wednesday and Thursday of this week by testimony on the advances in coal and coke rates.

MEAT AND PACKING HOUSE PRODUCTS

E. B. Boyd, chairman of the Western Trunk Line Committee, testified on the advance on meat and packing house products of 3½ cents per hundred pounds. With this advance, he said, the rates on these commodities would still be far below what has been approved by the Interstate Commerce Commission as a reasonable relationship between class rates on similar commodities in the West as compared with the East.

Mr. Boyd made this showing on third class traffic and fresh meats, and between fifth class traffic and packing house products from western points to Chicago, with the actual rates applying for equal distances east of Chicago, where the rates already have been approved by the Interstate Commerce Commission. Mr. Boyd introduced similar figures showing that the same discrepancies in favor of packing house products and fresh meats in the West and Southwest existed when the rates charged for hauls west and southwest of St. Louis were compared with those charged on the even more densely moving traffic eastward from St. Louis. As a result of these excessively low rates on packing house products and fresh meat, Mr. Boyd showed that the earnings accruing to the railways from the handling of this expensive traffic are among the lowest of all the commodities hauled by these railways belonging to similar classifications.

"Using an average distance of 325 miles, as approved by the Interstate Commerce Commission in a previous case," said Mr. Boyd, "the gross revenue per ton mile, not including empty car haul, on packing house products, is only .549 cent, while with the empty car haul included the gross revenue per ton mile sinks to .372 cent. Against these figures a few other commodities in the same class as packing house products return a gross revenue per ton mile, including and excluding, respectively, the empty car haul, as follows:

	Excl. Empties	Incl. Empties
Iron and steel articles	.825 cent	.743 cent
Petroleum oil	.613 cent	.548 cent
Pickles	.687 cent	.603 cent
Other articles, fifth class	.687 cent	.603 cent

"The same discrepancy in earnings is shown if we compare the gross earnings per ton mile on fresh meats with other articles properly belonging to third class. Not including the empty car haul, fresh meats return a gross revenue per ton mile of .477 cent, while if the empty car haul is included, the gross revenue per ton mile is only .314 cent. This compares with other commodities of the third class as follows:

	Excl. Empties	Incl. Empties
Agricultural implements	.766 cent	.665 cent
Oil cloth	.795 cent	.712 cent
Other articles, third class	.994 cent	.863 cent

Mr. Boyd's testimony applied to conditions prevailing on the railways operating west of Chicago and was corroborative of testimony introduced by F. A. Leland, chairman of the Southwestern Tariff Committee, as to conditions in the Southwest.

The present rates, it was further contended, are far below what they should be, considering the character of the traffic, the nature of the service and the rates in effect on other carload traffic of similar classification. The traffic requires a very expedited service, and therefore the train tonnage must be low, while the cars are much heavier than those used in other traffic, in addition to about three tons of ice per car, while the cars must be stopped often in transit for re-icing. Because of the high value and perishable nature, the damages are high. The traffic, therefore, it was contended, is of a very expensive nature and the freight charges represent an unusually small proportion of the value of the commodity transported.

C. E. Spens, assistant freight traffic manager of the Chicago, Burlington & Quincy, testified on livestock rates. The advance asked on livestock rates is generally a maximum of 2½ cents per hundred pounds, grading from that down to a fraction of one cent.

"Livestock tonnage in the United States is practically standing still," said Mr. Spens, "so there is no increase in the industry to be looked for and no hope of increasing the revenue from a growing traffic. The department of agriculture estimates as to livestock on farms, all stock yards records, and the loading figures of the railways, tell the same story. The Burlington handled less livestock in 1914 than in any other year for 10 years, except 1910, when the traffic was practically the same as in 1914. In our opinion this commodity does not contribute its proper proportion to our revenue, based on the cost of transportation, the value of the service to the shipper, or in comparison with other carload freight. A special livestock car can be used for little other traffic, special facilities are required, as stock yards, chutes, side tracks and other facilities, not required for other freight. Livestock requires greater care in transit, and there is greater hazard connected with its transportation. Free transportation must also be given to caretakers.

"The loading of livestock is greatly below the average of other carload freight and the cost of transporting freight depends largely upon the loading that can be secured. The percentage of empty to loaded mileage also is much greater on stock than on closed cars. Trains, moreover, cannot be loaded so heavily as with dead freight, which fact, coupled with the greater expedition required, makes an increased cost. Cars must be cleaned and frequently disinfected and federal statutes as to stopping in transit to feed and water entail additional expense.

"The value of livestock has increased greatly in recent years and the greater the value of the property, the greater the value of the service to the shipper. While it may be urged that the cost of producing livestock has increased, the cost to us of the service performed has increased also, but so far without any increase in our compensation. On the contrary there has been a decrease."

Mr. Spens submitted figures covering receipts for 15 years at the Chicago stock yards, showing the average prices received per head of cattle in each of three 5-year periods. "The third period, compared with the first," said Mr. Spens, "shows an increase in the price of cattle per head of 38.78 per cent; of hogs, 42.91 per cent; of sheep, 24.82 per cent, and of horses, 43.85 per cent.

"In 1914," he said, "the Burlington furnished free transportation to 79,484 caretakers of livestock. The total value of their transportation was $419,093, or 7.8 per cent of the freight earnings on the traffic. In the same year the damages paid on livestock were $243,951, and damages for injuries to caretakers $29,028. Claims on livestock were 5.09 per cent of the revenue from the traffic, while on other freight the proportion was only 1.4 per cent.

"How light loading increases the expense is shown by the fact that while livestock traffic furnished 5.62 per cent of our total freight tonnage, it required 14.34 per cent of our freight equipment. No commodity on the entire list requires so big a proportion of equipment to handle it in proportion to its tonnage

as does livestock. On no other commodity is our net loading so light, except poultry, eggs and furniture."

Mr. Speus showed that on few commodities is the revenue per gross ton mile or per car mile so small as on livestock. Some of the comparisons are as follows, including loaded and empty mileage:

	Per gross ton mile	Per car mile
Livestock	.375 cent	8.1 cents
Fresh meat	.277 cent	8.2 cents
Dressed poultry	.694 cent	20.2 cents
Beer	.456 cent	15.1 cents
Butter and cheese	.531 cent	15.2 cents
Agricultural implements	.527 cent	15.0 cents
Total manufactures	.416 cent	18.4 cents
Household goods	.435 cent	14.1 cents

The total revenue expected by the Burlington from this advance on livestock is only 2.54 per cent of the present revenue on the traffic, and only 22 per cent of the traffic is affected.

The testimony on livestock rates was not completed on Thursday, and a question arose as to whether livestock testimony should be continued on the following day or whether the schedule, which called for testimony on cotton piece goods, should be followed on Friday. The railroads wish to continue the livestock testimony at a later date, because their witness on cotton piece goods, S. H. Johnson, of the Rock Island Lines, desired to complete his testimony and leave town on account of the sickness in his family. Clifford Thorne and S. H. Cowan, attorney for the Texas livestock interests, insisted on continuing with the livestock testimony, and said that the railroads wished to postpone it to avoid cross-examination by Cowan, who also had an engagement that would require him to leave town. Their insistence brought forth a sharp rebuke by Commissioner Daniels, who asked that more consideration be given to what is due the commission, saying, "you have no charter to be a universal nuisance." There was some speculation as to whether the remark applied both to Thorne and Cowan or to Cowan alone, as he had been the last to interrupt the commissioner.

HAY

F. P. Eyman, assistant freight traffic manager of the Chicago & North Western, said that the western railways are asking for an increase in rates on hay from western and southwestern states to Chicago, in order to complete a readjustment, the beginning of which already has been approved by the Interstate Commerce Commission in a previous case. Advances of 2 cents per 100 lb. from Wisconsin, Minnesota and South Dakota to Chicago already have been approved, but no similar adjustment of rates was made from Iowa, Missouri, Kansas and Nebraska, on account of an unexpired order of the commission, which prevented the changing of the rates on hay between the Missouri river and Chicago.

"The proposed rates from Iowa and Missouri points," said Mr. Eyman, "are no higher than the rates approved by the commission in this previous case, setting rates from Minnesota, Wisconsin and South Dakota. A comparison of rates also shows that the proposed changes on hay from western territory to Chicago are not higher, but are practically the same as rates for similar distance from Chicago eastward, although the density of the traffic east of Chicago is much greater. Thus from Watertown, S. D., to Chicago, 593 miles, the proposed rate is 25 cents per 100 lb., while from Sandusky, Mich., to Albany, N. Y., 599 miles, where the traffic is denser, the present rate is 27.8 cents. The car mile earnings on hay on the North Western were only 11.50 cents against 18.18 cents on all other carload freight in the fiscal year 1914. Hay and its related products and excelsior are the only articles in the western classification with a minimum as low as 20,000 lb. which take the Class C rating.

"There has been a decided rise in the price of hay in recent years, the Chicago price on No. 1 timothy going from $11.85 per ton in 1900 to $22.38 in 1912, though receding to $16.79 in 1914. The farm prices in Missouri rose from $6.89 in 1902 to $13.60 in 1914, and in Iowa from $6.80 in 1900 to $10.10 in 1914.

"A very small proportion of the car capacity is used for hay as compared with other commodities. Hay occupies only 39 per cent of the car capacity, while for all products of agriculture the proportion is 59 per cent. Another factor increasing the cost of handling hay is the situation at terminals, where hay is handled as a peddling proposition and sold from team tracks to small buyers. This causes greater detention of cars on team tracks than on any other commodity. The total amount of increased revenue on hay for all railroads under the proposed rate would be only $175,000."

C. C. P. Rausch, assistant general freight agent of the Missouri Pacific-Iron Mountain system at St. Louis, took the stand later to justify the increase in rates on hay from territory west of the Missouri river and from southwestern and southern territory. He testified that the advance generally is 2 cents per 100 lb., and discussed the terminal situation at St. Louis, Memphis and New Orleans. By comparison of rates he showed that the proposed charges are not relatively high, as compared with the rates from St. Louis and Memphis to the Southeast. On broom corn, he testified, the advance proposed is 5 cents per 100 lb. from eastern Colorado, western Kansas, Oklahoma, northern Texas and eastern New Mexico to the Missouri River, the East and Southeast.

D. R. Lincoln, assistant general freight agent of the Missouri Pacific Railway, discussed the advances asked on hay from the standpoint of the Kansas City terminal situation. "Hay, to a very great extent, is reconsigned," said Mr. Lincoln. "The cars must be put on team tracks for inspection, which entails a great deal of extra switching service. The average detention on hay is over four days. It must be inspected for grading purposes and special tracks must be assigned for the commodity for this purpose. At one time recently we had over 1,100 cars at Kansas City, crowding our terminal, waiting for disposition or to get on team tracks. No demurrage can be charged on these cars until they reach the team tracks."

COTTON PIECE GOODS

S. H. Johnson, assistant freight traffic manager of the Rock Island Lines, testified as to the abnormally low rates prevailing on cotton piece goods and the unusually expensive nature of this less-than-carload merchandise traffic. The readjustment on cotton piece goods comprises, first, an advance of 5 cents per hundred pounds uniformly from such points as Chicago, St. Louis and Minneapolis to Western Trunk Line territory, Kansas and Nebraska; secondly, an advance of 5 cents from Texas producing points to the Missouri river and points west thereof, 10 cents to points east of the Missouri river and west of the Indiana-Illinois line, 20 cents to territory east of Chicago, and 10 cents to the seaboard via the Gulf.

"The average value of cotton piece goods is over 60 cents per pound or $60 per hundred," said Mr. Johnson. "The first class rate from the Mississippi to the Missouri river, 300 miles, is 60 cents per 100 lbs., or less than 1 per cent of the value. The proposed advanced commodity rate is only 40 cents, or less than 6/10 of 1 per cent. On a consignment of cotton piece goods valued at $65.45 the freight rate for 300 miles, even under the advanced rate, would be only 40 cents, or 6/10 of 1 cent for every dollar."

Mr. Johnson showed by an exhibit comparing 60 commodities moving between the Mississippi and the Missouri that the ratio of freight rate to value on 58 of the 60 was greater than on cotton piece goods even under the proposed advance, the average for the 60 being 9.04 per cent against 0.6 per cent on cotton piece goods.

"Cotton piece goods," said he, "is practically the only article which moves in less-than-carload quantities which is given a commodity rate. Less-than-carload business generally does not yield as adequate compensation as does carload business generally, which is one reason why the exception from class rates in the shape of a lower commodity rate on cotton piece goods should be minimized as proposed. The relatively low earnings on less-than-carload business is shown by the fact that the rev-

enue per gross ton mile on less-than-carload merchandise is 4.23 mills, as compared with 4.55 mills on carload shipments of manufacturers. The reason is that the average load on carload manufactures is 17.43 tons, while the average load on less-than-carload merchandise is only 3 tons. On one road last year the number of cars containing less-than-carload merchandise was 445,968, which paid only $8,131,843, whereas 126,920 carload shipments of manufacturers paid $7,574,965. In other words, it took about four times as many cars of merchandise as of carload shipments to earn about the same revenue.

As to the reasons why less-than-carload shipments are more expensive to handle, he mentioned the relatively larger use of local freight train service, the cost of handling and rehandling less-than-carload freight, whereas carload freight is loaded and unloaded by the shipper, and the fact that the ratio of loss and damage claims to revenue on less-than-carload freight is more than double that on carload shipments. There is also an immense increase in the cost of accounting.

Cotton piece goods in Western Classification territory is rated as first class freight, the same as dry goods. In Western Trunk Line territory the commodity rates on cotton piece goods are generally only third class. While believing the first class rate justifiable, the roads propose to retain the commodity rate to avoid too radical an advance. The proposed change, without restoring the rate to the normal first class basis, gets nearer to that basis to the extent of the advance.

Cotton piece goods, as indicated by the various decisions of the Interstate Commerce Commission, Mr. Johnson said, have been subjected to unusual stress of competition by reason of production in such widely separated producing sections as New England, the Southeast and Texas. These three producing sections meet in strong competition in the great markets of the Middle West. In addition to this influence, there has been vigorous competition between jobbing communities tending to depress rates.

GRAIN

On Monday of this week some additional testimony to show that a number of the tariffs filed by the railways would result in actually lower rates on grain than now prevail in some localities was given by F. B. Townsend, traffic manager of the Minneapolis & St. Louis. Mr. Townsend's testimony dealt particularly with the effect of the advances on traffic from South Dakota, Minnesota and Iowa as applied to the Minneapolis & St. Louis. The total grain tonnage handled by this road in the three states in 1913, he testified, was 35,894 cars.

"The increase asked," he said, "would give practically no increase on grain in South Dakota and Minnesota, as all moves to Minneapolis, Duluth, Chicago and Milwaukee, where no increase in rates is asked from these states. Thus there is a very heavy tonnage there which would feel no increase. On Iowa grain the proposed advance would yield an increased revenue to the Minneapolis & St. Louis and the lines connecting with it to the markets where advances are made, of approximately $75,000 per year."

An elaborate analysis of the present and proposed rates from all three states to the various grain markets was presented, which showed that to many no advance would be effected, while to others present rates would actually be reduced because of the inauguration of commodity rates on grain where at present no commodity rates apply, the grain being hauled under class rates.

Export grain has lost any features of desirability it may have had in 1907 when the commission found this traffic a desirable one from a railway standpoint, said N. D. Ballantine, assistant to second vice-president, Chicago, Rock Island & Pacific. "None of the factors mentioned then," said he, "holds good today. Far from entailing no excessive cost for delivery, last season we had 2,000 cars held back on account of the embargo and congestion on export grain. Cars were held as far back as 1,000 miles from the ports. The grain heated and it was necessary to inspect all of it and transfer and elevate a large portion. We had over $2,000,000 worth of perishable grain on our hands and it entailed a large expense.

"There is an excessive empty haul on these export cars, and they are not loaded to capacity, as the commission found in 1907. The load is not more than to within 15 to 20 per cent of the capacity of the car. There is a great added expense and delay to other freight trains where side tracks are filled with empty cars, stored for export grain loading."

L. E. Wettling, statistician for the roads, submitted detailed figures showing that the total increased revenue on grain for all roads would be $2,252,493, or only ⅓ of 1 per cent of their total freight revenue.

MISPLACED RESPONSIBILITY

By J. L. Coss.

The train despatcher is held responsible for the movement of trains over his territory and in many cases for delays which are caused by conditions over which he has no control; but if he writes up the facts in their true light the men on the road will complain of "rawhiding" and the local officers may look on him as a chronic kicker. Such officers should consider some of these obstacles:

A train is called for 5 p. m. and does not get out until 5:30 or 6. The delay report shows engine not out of house in time, or waiting for way bills; or some member of the crew received a short call, etc.

A train is called out of a terminal in the face of several incoming trains so as to avoid showing a delay of power in the roundhouse.

A conductor reports ready to go at a certain station at 3 p. r and is cleared with a handful of meet orders; but he goes to the far end of the yard and does not get out for 30 minutes.

Officers out on the line change instructions to trains, or give them some work to do without notifying the despatcher's office.

Absence of consists of incoming or outgoing trains. The despatcher does not know what he has to set out or where.

Overloading of engines, making it necessary for them to double hills and run for water.

Trains are allowed to drag along until close to the 16-hour limit; then there is anxiety to get them into the terminal and opposing trains have to be killed to do it.

Switch engines that attend to industries outside of yard limits will pop up at all times of day, with but little advance notice, sometimes without any. If you ask them how long it will take them the reply, in most cases, is "Don't know."

Late notice of advice from connecting lines of passenger reports and for which trains are held a specified time.

Side tracks which will not accommodate the length of trains handled and positive instructions that certain trains must not be sawed at these points. Often this makes it necessary to hold other trains back.

Indifference on the part of train and engine crews to the duty of advising if anything is irregular on the run, such as engine not steaming, hot boxes, etc.

Local freights holding through trains at stations while doing their work; also trains which are delayed by engine trouble or something similar holding trains behind them to avoid being run around.

There are many other things that figure to the detriment of the despatcher. Officers, in studying delays, should not confine themselves to the train sheet.

Railway Extension in Spain.—The official publication is announced in Spain of a royal order, opening a new competition for the construction of the direct railway from Madrid to Valencia. This railroad, if built, will make Valencia the undisputed seaport of Madrid, as the line will be 240 miles in length as against 306 miles as at present. The Spanish government will guarantee 5 per cent interest on the net capital investment.

"The Railroads and the Public"—A National Problem*

Essentials of Sound Public Regulation. Nothing to Be Gained and Much to Be Lost by Government Ownership

By Daniel Willard
President of the Baltimore & Ohio

The railroad is not a manufacturer or a merchant, although it may be said that it manufactures train miles and sells ton and passenger miles. It is not a producer but in a large way is rather the servant of others—the servant of the *public*. Without the public there would be no need for the railroad; without the railroad or some equally good substitute, there would be an entirely different public, as well as an entirely different state of civilization. This view of the railroad as regards its function and relation to the public seems not to have been generally held at first, and much confusion of thought resulted therefrom.

Partly because of the rapid construction of new railroads in response to the great and insistent demand for such facilities, abuses and unwise practices developed in connection with railroad management, just as they have developed in all other kinds of human endeavor.

In 1876 the Supreme Court of the United States in the leading case of Munn vs. Illinois, held that "When the owner of property devotes it to a use in which the public has an interest, he in effect grants to the public an interest in such use, and must, to the extent of that interest, submit to be controlled by the public for the common good, as long as he maintains the use." The principles announced in this decision, and in an early English one, together with the constitutional right of Congress to regulate interstate commerce, may be said to constitute the foundation of our national policy of railroad regulation.

While the government might have constructed, owned and operated the railroads had it decided to do so, as a matter of fact the government did not build the railroads, but instead invited private capital to discharge for it this public function, upon the assurance—supported by the common law—that capital so invested should be allowed to receive a fair compensation for its use, and as Commissioner Prouty has well said, "Nothing can be more unjust than to deny to this capital that right." Under our system of private ownership with government regulation, the American railway system has grown to the total of 258,000 miles of operated main lines.

The *owned* mileage with no duplications is 249,803.

REMARKABLE USE OF OUR RAILROADS

The people of the United States make greater use of their railroads than is the case in any other important country, as the following table shows:

Number of Tons Moved One Mile per Capita per Annum

United Kingdom	286
Austria-Hungary	318
France	365
Germany	582
United States	2,737

This is partly because of the greater area and rich natural resources of the United States, but chiefly because the freight rates here are so low that the difference in cost of transportation may be and often is more than offset by the natural advantages of certain regions or localities, thus making it more economical to procure our coal, ore, lumber, grain, etc., where the superior natural advantages or conditions give the lowest initial cost, disregarding largely the element of distance.

The American railway system, taken as a whole, during the fiscal year ended June 30, 1913, carried 2,058,035,487 tons of freight an average distance of 146.59 miles, and received for so doing $2,198,930,565, equal to 7.29 mills per ton mile. During the same year 1,033,679,680 passengers were carried an average distance of 33.58 miles each, for a total sum of $695,987,817, or 2.008 cents per mile. The aggregate earnings of all the railroads for the year above mentioned were $3,125,135,798 and the total operating expenses for the same period were $2,182,769,000. More than 1,800,000 men and women are employed by these carriers with an annual payroll of $1,373,000,000. The total cost of these roads as represented by "property investment" account on June 30, 1913, was approximately $16,000,000,000.

NOT OVERCAPITALIZED

The following table shows comparative cost per mile of railways in leading European countries and the United States:

United Kingdom	$277,346 (1912)	Switzerland	$120,950 (1911)
Belgium	190,914 (1911)	Germany	116,662 (1912)
France	148,625 (1911)	Austria-Hungary	96,033 (1911)
Italy	126,886 (1911)	United States	65,681 (1913)

Notwithstanding the statement so often made in the past, but much less frequently at present, that our American railroads are over-capitalized, it will be seen from the figures just given that the average capitalization or cost per mile of the roads in the European countries mentioned, is more than double what it is in the United States. This is due largely to the fact that it has been the general custom in this country to make many additions to the properties from current earnings—that is to say, from the surplus earnings from year to year that might otherwise have been distributed to the stockholders as dividends.

The railroads now pay more than $130,000,000 per year as taxes, equal to 4.3 per cent of their gross earnings, a sum, by the way, more than two and one-half times as much as the government pays all the railroads for carrying the mails.

PROBLEM OF REGULATION

The figures quoted indicate to some extent the magnitude of the undertaking which has been built up with private capital and is now devoted to public use, and on that account subject to public regulation. A policy of regulation dealing wisely and well with such a problem must, in the broader interest of all, give just consideration to the rights of all. A selfish policy, were it possible, either in the interest of the 1,500,000 security holders or of the 1,800,000 employees of the American railroads would soon cause general dissatisfaction, which in turn would find expression in laws framed to punish as well as to correct. A policy intent only or chiefly upon securing lower and still lower rates, as is sometimes urged, regardless of the rights of those whose money has made the roads possible, will inevitably fail because new capital could not be obtained under such conditions, railroad growth would stop and all industry would suffer. The Interstate Commerce Commission has said truly that "The means of transportation are fundamental and indispensable agencies in our industrial life and for the common weal should be kept abreast of public requirements."

It is the function of regulation to so evenly balance the conflicting claims of the many that the just rights of all shall be properly conserved. Certainly this presents a most intricate problem, but in my opinion one by no means impossible of solution. Since the Interstate Commerce Commission has been in existence, it has handed down a large number of opinions or decisions, and in these decisions may be seen the gradual unfolding of our federal policy of railroad regulation. I shall discuss chiefly federal regulation, because the steam locomotive and the electric telegraph and telephone have in effect eliminated state boundaries in a commercial sense, and state regulation of

*From an address to the students of Dartmouth College, Hanover, N. H., March 22, 1915.

the agencies of commerce must on that account yield largely to federal regulation and control.

FEDERAL POLICY OF REGULATION

The two decisions of the Interstate Commerce Commission in the so-called Five Per Cent Rate Case contain the essentials of a bill of rights for the roads. In these decisions and in support of what I have just said is to be found the following language:

> The proceeding before us may therefore be described as, in some sense, a controversy between the consuming public which pays the rates, and the investor who furnishes the facilities for moving the freight; and our duty is to ascertain from the record before us what are their respective rights. That, in fact, is the real railroad question—the just balancing of the mutual rights of the public and of the carriers under a national policy that permits and invites the performance of this public function by private interests. From that point of view the problems and difficulties of our railroad become public problems of great national concern. . . .
>
> The public interest demands not only the adequate maintenance of existing railroads, but a constant increase of our transporation facilities to keep pace with the growth and requirements of our commerce. If, however, that development is to be accomplished with private capital, in conformity with our traditions, nothing can be more certain than that the facilities will not be provided except under such a system of regulation as will reasonably permit a fair return on the money invested.

In harmony with the policy indicated in the general statements just read, the commission, after considering all the testimony presented, said further—

> In view of a tendency towards a diminishing net operating income as shown by the facts described we are of opinion that the net operating income of the railroads in official classification territory, taken as a whole, is smaller than is demanded in the interest of both the general public and the railroads; and it is our duty and our purpose to aid, so far as we legally may, in the solution of the problem as to the course that the carriers may pursue to meet the situation.

Speaking more definitely in the same connection the commission also said:

> There can be no doubt upon the record that the carriers in central freight association territory ought, in the public interest, to have as much additional revenue as would be produced by a five per cent increase, as modified herein, and possibly more. . . . The traveling public is giving expression to its demands for better service, better accommodations, and for the adoption by carriers of all the devices that make for safety. A public that demands such a service can not reasonably object to the payment of a reasonable compensation therefor.

The commission also suggested certain reforms and changes of practice which it was thought would tend to augment net revenues.

In the decisions or opinions in the Five Per Cent Case from which I have just quoted, may be found not only a clear statement of the railroad problem of today as defined by the commission, but also a recognition of the principles essential to and sufficient for its satisfactory solution. The commission concedes and asserts:

That there is in this country a fundamental need of adequate transportation facilities.

That such facilities during the continuance of present economic conditions can only be had by means of private capital, combined with private enterprise.

That private capital can only be obtained by the hope and realization of fair and reasonable return.

That to produce such return, freight rates may be raised, when it is shown that existing rates as a whole yield inadequate revenue, and that the higher rates proposed would be reasonable.

That such reasonable passenger fares may be charged as will yield a fair return on the property devoted to passenger use, and further—that in general each class of service, including the mail and express, should contribute its just proportion to the total economic cost of operation.

By economic cost of operation I mean all costs, including the interest or dividends paid for the use of capital invested in the plant.

The foregoing principles have been contended for by the carriers; they have been clearly and freely admitted by the commission in the Five Per Cent Rate case, and I believe when the matter is clearly understood will be just as freely granted by the general public, because I believe the public when correctly informed will be fair.

THE LABOR PROBLEM

The relations between the railroad and the shipper have, as I have shown, been very clearly defined and established, but no authoritative word has yet been spoken concerning the relations between the railroad and its employees, or between railroad employees and the public. When it is recalled that the total number of railroad employees in the United States is roundly 1,800,000, or about one-tenth of the entire voting population, and that 44 cents out of every dollar earned by the railroads, equal to $1,373,830,589 per annum, goes directly to pay labor, the magnitude of this phase of the railroad question becomes apparent.

I shall not enlarge upon this particular matter, but any discussion of the railroad question which ignored this feature would be incomplete, and any forecast of the future of the railroads which fails to take this matter fully into account will also be incomplete and unreliable. Railroad employees or many of them are required to perform duties of a more or less hazardous nature, and they are also called upon frequently to think and act quickly and to use good judgment. As a whole there is, in my opinion, no better or more worthy class of men to be found anywhere or in any employment. They are semi-public servants and as a rule serve the public well, and deserve well of the public. All this, however, should not blind the public to the fact that all elements of cost, including wages, must finally be reflected in the freight and passenger rates which the public must pay. The railroad has no other source of revenue.

ENLARGE AND REORGANIZE THE I. C. C.

If the principles established in the Five Per Cent case be generally accepted, and actually made the basis of our national policy of railroad regulation, I feel confident that the problem of how best to provide adequate service at reasonable rates will be satisfactorily worked out under the present plan of private ownership with government control, but I also believe that before this result can be fully realized, the interstate commerce law must be amended. The Interstate Commerce Commission should be enlarged and reorganized and its powers so broadened that it may be able to deal promptly and effectively with the various matters under its jurisdiction. It is not able to do so at the present time. The interstate commerce law as it is today reflects the influence in the past of a nation-wide demand upon Congress to enact a law or laws which should primarily be sufficient to protect the public from the assumed greed of the railroads, and to that end the commission has been given the power among other things to order rate reductions and to prevent rate advances.

It is right that the people should be protected from the selfishness of the railroads, but it is equally important that the railroads be protected from the unreasoning demands of the public. The commission should be given the power to fix the minimum as well as the maximum rate which the railroads may charge. It should be kept in mind that the demands of the growing commerce in this country make necessary an annual expenditure by the railroads for additions and betterments of not less than $750,000,000. If those having money to invest lose confidence in the stability of railroad securities that fact is immediately reflected in reduced railroad expenditures for additions, betterments and equipment. Such expenditures at the present time I believe are at the lowest point reached in the last fifteen years, and much below the amount necessary to maintain the existing standards of facilities and service, and while the European war has had some effect, the situation was very serious before the war broke out and reflected in no small degree the results of our general policy of railroad regulation, particularly during the last ten years.

The policy referred to has found expression not only in the acts of commissions but in the laws as well—both state and federal. In the year 1913, 1,395 bills, designed to regulate the

details of practical railroad operation, were introduced in the legislatures of the various states then in session, and 230 of those bills were enacted into law. The increases in operating expenses and taxes of railroads, due to the causes just mentioned and to wage advances, have more than counterbalanced the economies derived from additional traffic and increased transportation efficiency, leaving no increased income to apply on the enlarged property investment. No industrial undertaking can thrive, or even continue to exist, under such conditions. If the present plan of private ownership with government regulation should fail because of unwillingness on the part of the public to invest further in railroad securities, it will be no less the fault of those responsible for the policy of regulation than of those responsible for the management of the railways.

ADEQUATE SERVICE VS. CHEAPER RATES

The most serious question before the people today is not whether they are going to have cheaper freight rates in the future, but rather will they be able in the future to obtain *adequate service* at any rate. The railroads may be depended upon to furnish adequate transportation for the growing commerce and at reasonable rates, providing only they feel assured that reasonable rates will be permitted, and providing also that the cost of operation be not unnecessarily augmented by unwise legislation, as has been the case in the past, or by forced wage increases not justified by existing conditions.

The total railroad mileage of the world as last reported was 683,000 miles, of which 258,000 or about 37 per cent are in the United States. Of the total world mileage, it is estimated that about 205,000, or less than one-third, are at present owned and operated by the several governments, and there are those who urge that our railroads also should be owned and operated by the government, instead of being privately owned as at present but regulated by the government.

GOVERNMENT OWNERSHIP

Those who advocate government ownership assert that because of its high financial credit the government would be able to obtain the necessary capital at rates lower than are paid under the existing plan, but no one knows how much lower, or what the actual saving in that respect might be, or how long that condition might continue. The price of government bonds under existing conditions is not a fair measure of what the government might have to pay for money in large amounts and under open competitive conditions. The advocates of government ownership also claim that all special privileges and discriminations would be abolished. That can be as easily accomplished under the present plan—in fact, has been. They claim that the government by operating all of the roads as one system could save the unnecessary expense involved in the large number of employees now engaged in soliciting freight and passengers for the different lines. This is true, but it does not necessarily follow that the public would be the gainer thereby. The fact that our freight rates are already the lowest in the world is due very largely to the stimulus of competition, and competition would, of course, cease to exist under the plan discussed.

Beyond question, the railroads in Germany and particularly in the Kingdom of Prussia, are well maintained and well operated, but the freight rates which obtain in that country are much higher than they are in the United States. It is more difficult to make a comparison of passenger rates because the conditions of the passenger service in this country are so unlike the conditions in Continental Europe. However, when consideration is given to the different classes of service and the character of the equipment used, together with the fact that baggage is not carried free on any of the European roads as is the case in this country, I am convinced that passenger fares upon the average in the United States are no higher than they are upon the average for similar service in Europe. In no country outside of Germany, in my opinion, are the railroads operated and managed as prudently or efficiently under government ownership as is the case in the United States under private ownership with governmental control, and freight rates in the United States are upon the average much lower than those charged in Continental Europe.

Under normal conditions and with present mileage, about 2,000,000 employees would be needed for our railways, with a payroll of approximately $1,500,000,000 per annum. I doubt seriously the wisdom of placing that additional number of men upon the civil list of the government. I submit that so far the government has not demonstrated its ability to carry on large industrial undertakings better than can be done by private enterprise, and until we have tangible evidence of such superior managerial capacity on the part of the government, I think it would be a most unfortunate mistake to make the change. I do not believe government ownership of railroads in the United States is impending. I do not believe any considerable portion of the people desire it, and I do not expect to see it come unless the present plan should break down because of the unwillingness of investors to put more money in railroad investments.

However, if the principles enunciated in the "Five Per Cent Rate Case" be made the actual basis of our future national policy of railway regulation, and if the powers of the commission be so broadened as to enable it to protect the railways as well as the public, I believe railroad investments will in time become so well established that the necessary new capital can be obtained from private investors at rates, upon the average, not more than one and a half or 2 per cent above the amount which the government would be required to pay. The average rate (interest and dividend) paid in 1913 was 4.3 per cent. As against that, if the people in this country were required to pay the higher freight rates which are charged today by the government-owned railroads of Europe, the increase in freight charges would be more than three times the amount which would be saved by the lower interest rates I have suggested. An increase of only one mill per ton mile above our present average freight rate would mean a difference of more than $300,000,000 per annum, a larger amount, I believe, than the government could possibly save by lower interest rates due to its superior credit.

The general claim is also made that, for the reasons already mentioned and others, the government could operate the roads better and more cheaply than the present owners and managers, and consequently give still lower freight and passenger rates. Undoubtedly the government could, if it desired, give lower freight and passenger rates because if the total charges collected under government ownership fell short of the amount necessary to pay operating expenses and interest on money invested in the plant, the government could, by the exercise of its power to tax, raise in that way sufficient funds to meet the deficit. We have the example of a similar case in our neighboring country on the north. For the last two years, 1913 and 1914, the Intercolonial Railway of Canada, which is owned by the Canadian government, has failed to earn its operating expenses, and of course has contributed nothing towards the interest upon the $97,000,000 which that system has cost.

Our post office has been managed in a similar way; that is to say, if there is a deficit, it is taken care of from the general fund raised by taxation.

It should be kept clearly in mind that it is the "economic cost" of transportation which the public is most deeply interested in, rather than the specific rates which may be charged. It is of primary importance that the total economic cost of transportation shall be made as low as is compatible with good service, for while the total cost may be paid wholly in the form of passenger and freight rates, or partly in the form of rates and partly in the form of taxes, in the long run it must all be paid in some form, and in whatever form it is paid, it is a burden on the people, the industry and the commerce of the country which they cannot escape. Rates, of course, may be made as low under government ownership as the people through

their government may decide, but the total economic cost of transportation, all of which the public must pay in one form or another, depends upon the manner in which the railways are managed, and not upon the question of ownership.

Now that it has come to be generally recognized that there is a very distinct and intimate relationship between the total economic cost of transportation and the rates which must be paid, the public should be furnished all of the information that is necessary to enable it to judge whether the railroads are being prudently and wisely managed. Full publicity concerning all matters of policy and management, including the raising and expenditure of new capital, will go far to insure honesty and to prevent discrimination, and no stronger motive for efficiency can be found than the natural desire for larger profits which, of course, will obtain, and properly so, with private ownership, but will be entirely lacking under government ownership.

Those who manage the railroads should realize, as I believe they do, that they occupy a dual position—that of semi-public officer and also that of trustee for the owners of the property of which they are in charge, and that in the end they will best fulfill the function of trustee by giving adequate and satisfactory service to the public.

There is no reason why we should be ashamed of our railroads as a whole. Professor Ripley says, in his recent book on Railroads: "Never in our history, and probably nowhere else in the world, has the standard of probity, the quickened sense of responsibility, both public and private among American railroad men, been more pronounced than it is at the present time." He also says: "American railways are avowedly among the best in the world."

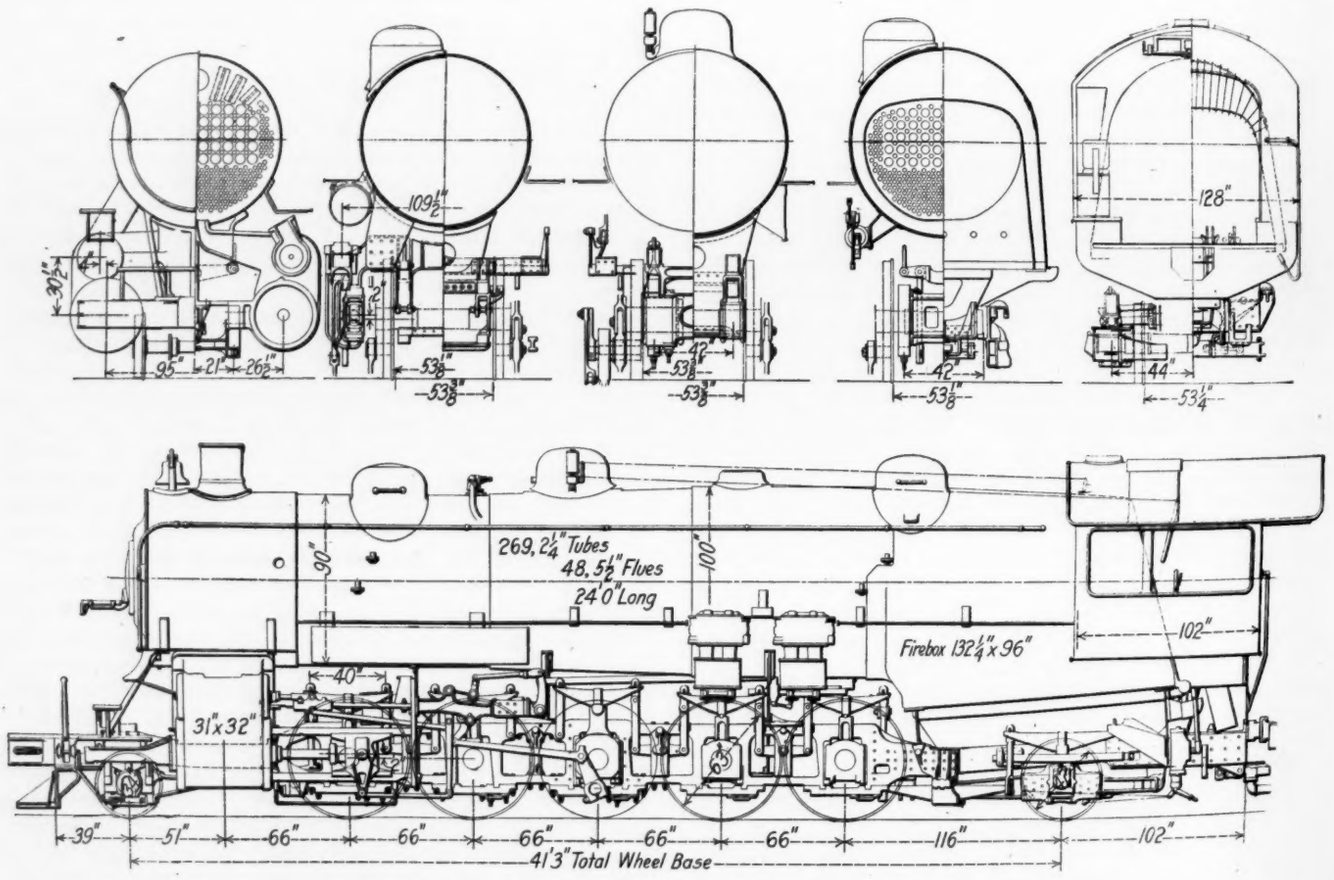
To my mind if there is any one thing distinctively American of which we should all be justly proud, it is our railway system, because, notwithstanding all that may be said against it, the fact remains that it has paid the highest wages, and sold its output—that is, transportation—at the lowest price, and at the same time has furnished more transportation per dollar invested in facilities than any other country in the world; a record, I repeat, of which we should all be justly proud.

ERIE 2-10-2 TYPE LOCOMOTIVE

The Erie Railroad has recently received from the Baldwin Locomotive Works a large locomotive of the 2-10-2 type, which is slightly heavier than the engines of this type built last year for the Baltimore & Ohio, and described on page 242 of the August 7 issue of the *Railway Age Gazette*. The new locomotive has 63-in. drivers, the largest yet to be placed on an engine of the 2-10-2 type, and by using 31-in. cylinders the tractive effort has been maintained very nearly to that of the Baltimore & Ohio locomotives. In the following table is a comparison of the leading dimensions of these locomotives:

Road	B. & O.	Erie
Tractive effort	84,500 lb.	83,000 lb.
Weight on drivers	336,800 lb.	327,250 lb.
Weight, total engine	406,000 lb.	407,700 lb.
Drivers, diameter	58 in.	63 in.
Cylinders, diam. and stroke	30 in. by 32 in.	31 in. by 32 in.
Steam pressure	200 lb.	200 lb.
Evaporating heating surface	5,573 sq. ft.	5,801 sq. ft.
Superheater heating surface	1,329 sq. ft.	1,377 sq. ft.
Grate area	88 sq. ft.	88.1 sq. ft.

The boiler of the Erie locomotive is similar in construction to that of the Baltimore & Ohio locomotive illustrated in the description above referred to. The difference in the heating surface is due almost entirely to an increase in the length of tubes, which are 24 ft. long as compared with a length of 23 ft. in the boilers of the Baltimore & Ohio locomotives. The tubes are welded into the back tube sheet. The new boiler has a conical ring in the middle of the barrel which increases the shell diameter from 90 in. to 100 in. The main dome is of pressed steel in one piece and is mounted on the connection ring, while the auxiliary dome is forward of the firebox on the



Longitudinal and Sectional Elevations, Erie 2-10-2 Type Locomotive

third ring and is placed over a 16-in. opening in the shell. The boiler contains a combustion chamber 28 in. long. The equipment includes a Schmidt superheater, Security brick arch, Street stoker, Talmage ash-pan and blowoff system, Franklin grate shaker and firedoor and Chambers throttle valve.

The cylinder castings are simple and massive in design, and are secured to the frames by 12 horizontal 1½-in. bolts each. Both the cylinders and steam chests are fitted with bushings of Hunt-Spiller gun iron and the same material is used for piston and valve packing rings. In designing the cylinders special attention has been given to the exhaust passages which are unusually direct and of liberal section area. Steam distribution is controlled by a 16-in. piston valve driven by the Baker gear and set with a lead of 3/16 in. The locomotive is equipped with the Ragonnet power reverse gear.

The reciprocating parts are comparatively light for an engine of this size. Forged and rolled steel pistons of Z-section are used. The guides are of the alligator type with a vertical distance of 20 in. between the bars. The crossheads have steel bodies with bronze gibs 32 in. in length and weigh 785 lb. apiece; this weight, although large in itself, may be considered low for the size required. The front and back main rod stubs are of the Markel type with removable brasses, the cast steel filling blocks in the main stub being cored out to remove as much weight as possible. Owing to the comparatively large diameter of the wheels and the relatively light reciprocating weights it has been possible to balance the locomotive satisfactorily without resorting to the use of auxiliary counterweights on the main axle, and lead has been used in the counter weights of the main wheels only.

The frames are Vanadium steel castings with rear sections of forged iron. The main frames are 6 in. in width and are spaced 42 in. between centers. The single front rails are cast integral with the main sections and in front of the cylinders they are bolted to a combined deck plate and bumper casting furnished by the Commonwealth Steel Company, in which is housed the Miner draft gear. Wherever possible this casting has been cored out to remove superfluous weight.

The driving wheels have a total lateral play in the boxes of ¼ in., and the first and fifth pairs have ¼ in. more play between the flanges and rails than the second and fourth pairs. The main wheels have plain tires, and in spite of the long rigid wheelbase the locomotive will traverse 16-deg. curves. The engine has the Woodard leading truck and the Cole trailing truck and the running gear details include Cole long main driving boxes.

Wherever practicable, details have been made interchangeable with corresponding parts of the Erie's latest Mikado type locomotives. Such parts include the tender trucks complete, the pilot, frame-crossties, brake shoes and heads, and the following parts except for the main wheels: driving boxes, axles, tires and shoes and wedges. Flange oilers are applied to the leading wheels and a speed recorder is operated from the rear truck.

The tender is of the Vanderbilt type, having a water capacity of 10,000 gal., and a coal capacity of 16 tons. The trucks have cast steel side frames and solid rolled steel wheels manufactured by the Standard Steel Works Company.

The 2-10-2 type, although not yet generally in use has met with marked success in heavy freight service and the large boiler capacity, together with the comparatively large driving wheel diameter of the Erie locomotive indicates the possibility of further development in this type toward sustained capacity at higher speeds.

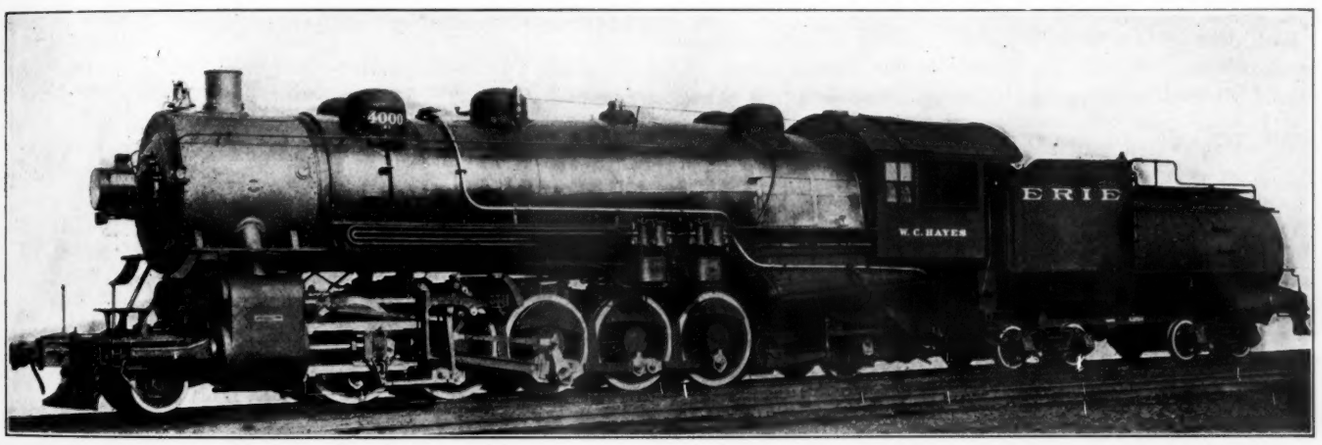
The following are the principal dimensions and data:

General Data

Gage	4 ft. 8½ in.
Service	Freight
Fuel	Soft coal
Tractive effort	83,000 lb.
Weight in working order	407,700 lb.
Weight on drivers	327,250 lb.
Weight on leading truck	24,450 lb.
Weight on trailing truck	56,000 lb.
Weight of engine and tender in working order	586,300 lb.
Wheel base, driving	22 ft.
Wheel base, total	41 ft. 3 in.
Wheel base, engine and tender	77 ft. 4½ in.

Ratios

Weight on drivers ÷ tractive effort	3.94
Total weight ÷ tractive effort	6.18
Tractive effort × diam. drivers ÷ equivalent heating surface*	664.72
Equivalent heating surface* ÷ grate area	89.29



Erie 2-10-2 Type Locomotive for Heavy Freight Service

Firebox heating surface ÷ equivalent heating surface,* per cent	3.28
Weight on drivers ÷ equivalent heating surface*	41.60
Total weight ÷ equivalent heating surface*	51.83
Volume both cylinders	27.95 cu. ft.
Equivalent heating surface* ÷ vol. cylinders	281.45
Grate area ÷ vol. cylinders	3.15

Cylinders

Kind	Simple
Diameter and stroke	31 in. by 32 in.

Valves

Kind	Piston
Diameter	16 in.

Wheels

Driving, diameter over tires	63 in.
Driving, thickness of tires	3½ in.
Driving journals, main, diameter and length	13 in. by 22 in.
Driving journals, others, diameter and length	11 in. by 13 in.
Engine truck wheels, diameter	34 in.
Engine truck, journals	6 in. by 12 in.
Trailing truck wheels, diameter	42 in.
Trailing truck, journals	9 in. by 14 in.

Boiler

Style	Conical
Working pressure	200 lb. per sq. in.
Outside diameter of first ring	90 in.
Firebox, length and width	132¼ x 96 in.
Firebox plates, thickness, sides, back and crown ⅜ in., tube ⅝ in.	
Firebox, water space	6 in.
Tubes, number and outside diameter	269—2½ in.
Flues, number and outside diameter	48—5½ in.
Tubes and flues, length	24 ft.
Heating surface, tubes	5,443 sq. ft.
Heating surface, arch tubes	37 sq. ft.
Heating surface, firebox	258 sq. ft.
Heating surface, total	5,801 sq. ft.
Superheater heating surface	1,377 sq. ft.

Equivalent heating surface*	7,866.5 sq. ft.
Grate area	88.1 sq. ft.

Tender

Weight	178,600 lb.
Wheels, diameter	33 in.
Journals, diameter and length	6 in. by 11 in.
Water capacity	10,000 gal.
Coal capacity	16 tons

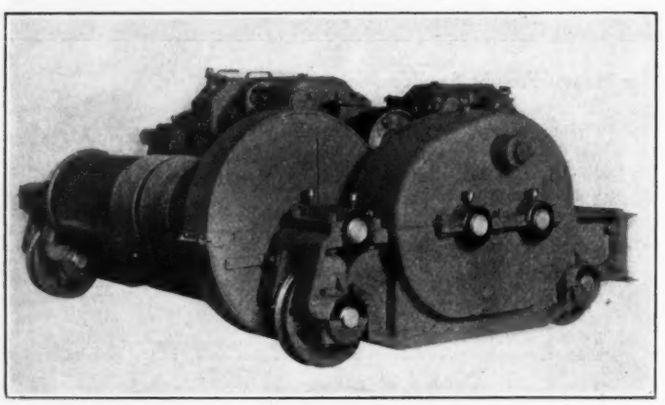
*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

ELECTRIC CRANE TROLLEY

The trolley shown in the photograph embodies a number of recently made improvements but is of the same general form as one which has been on the market for some time. It is built by the Northern Engineering Works, Detroit, Mich., and in the present form embodies the most recent crane engineering practice.

A primary consideration in the altered design has been safety, both in the way of strength and in the perfection of working parts. Durability of gears and other moving parts has been secured by enclosing and running them in an oil bath, thus protecting them from dust and grit. The construction is such that the covers of the gear cases must be in place before the gearing can be run, thus preventing carelessness in operating the trolley with gear covers removed.

Each train of back gears is rigidly mounted in a single frame, the bearings of which are bored in line, bronze lined and capped, through bolts instead of studs being used throughout. The hoisting gear train between the armature and drum gear is in a single rigid casting which insures permanent alinement. The drum gear is enclosed in a case of the same general type that is used for the hoisting gearing. All gears bear in the frame and are capped on top, no overhung bearings being used. All gear covers are castings and the joints are planed so that they are perfectly tight, thus preventing the leakage and dripping of oil from the trolley to the floor of the plant. The covers may be easily lifted, but for inspection and lubrication large manholes are provided in each cover. It has been found in practice that a set of gears in a trolley of the enclosed type running alongside a crane having a trolley with exposed or partially protected gears lasts more than three times as long as the gears in the old type of trolley and the operation is almost noiseless. The hoisting gear box is made an integral part of the main trolley frame, thus securing permanency of alinement of all gears and their shafts.



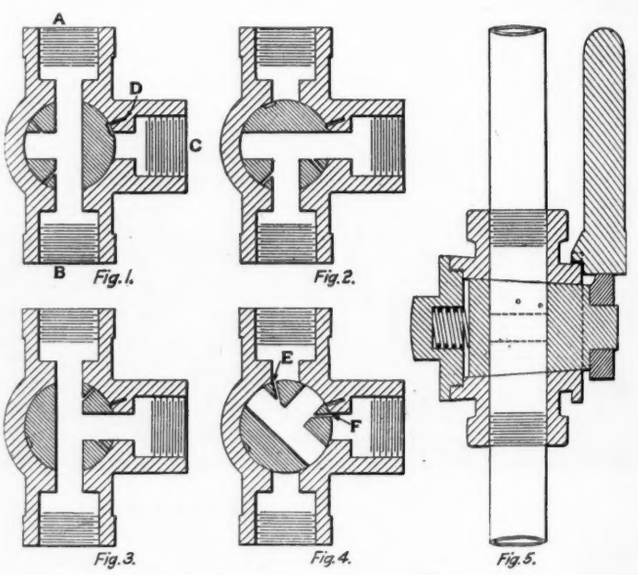
Electric Crane Trolley with Enclosed Gear Cases

A double system of electrical and mechanical brakes is used and the trolley is also equipped with an effective limit stop. Interchangeability has been insured by the use of standard gages and templates. The trolley is wired throughout in steel conduits. For mill service it has axle bearings either of the vertical or horizontal cast M. C. B. type. It is made in capacities from two tons to 125 tons.

SAFETY CUT-OUT VALVE

G. H. Wilson, a locomotive engineer on the Atchison, Topeka & Santa Fe, has invented a cut-out valve to replace the ordinary cut-out valve now used in the train line directly under the engineer's valve for the purpose of cutting out this valve when two or more engines are coupled to one train. The special features of the new valve are that it can be used in emergency if there is an accident to the engineer's valve; it is provided with a warning port which gives assurance that there is no train line stoppage between the rear engine and the leading engine as soon as the leading engine is cut in; it permits the rear engineman to instantly assume full control of the brakes in double-heading service, provided he finds it necessary to do so, and lastly, it is so designed that it will not be possible for the helper engine to cut off from the train until the second engineman takes control of the brakes, without the brakes being set throughout the entire train. Its use will eliminate the necessity of having a cut-out cock on the train line leading to the front end of the locomotive.

This valve is a three-way cock with the openings *A* leading to the engineer's valve, *B* to the main train line and *C* to the locomotive train line leading to the front end. Warning port *D* leads to the atmosphere, and when double-heading informs the engineman on the second engine that the engineman of the leading engine is ready to assume control of the brakes. Fig. 1 shows the valve in position for operating the train under ordinary conditions. In Fig. 2 the valve is shown in the position used on the second engine when double-heading. Fig. 3 shows the position used by the second engineman when he desires to assume control of the brakes while double-heading. In picking up cars on the head-end of the engine, the train line of these cars is chargd without disturbing the pressure of the main train line, by placing the valve in the position shown in Fig. 4. When a pusher engine is used on the rear of the train, the cut-out valve is operated in the same manner as on the second engine when double-heading. Further information regarding this valve may be obtained from Thomas Ogden, Box 252, Rawlins, Wyo.



Safety Cut-Out Valve for Locomotives

COAL IN AUSTRIA.—The congestion from lack of rolling stock in the Ostrau-Karwin district of Austria, is reported to have been somewhat alleviated, and the mines have been better able to satisfy their customers. The construction of the second line on the Kaschan-Oderberg Railway makes considerable progress in spite of the war, and the last portion of the Orlan-Oderberg section is expected to be ready in the spring.

General News Department

Mayor McMullen, of Norwich, N. Y., is engineer of a passenger train on the New York, Ontario & Western, and W. H. Kirkby, conductor of the same train, has just been elected president of the village of Sidney.

James Julian Carter, a brakeman on the Canadian Pacific, has been awarded the Albert medal, by the King of Great Britain, in recognition of his heroism is rescuing a little girl from in front of a railroad train at Tweed, Ont., some months ago.

The number of employees of the Grand Trunk Railway of Canada who have enlisted for service in the European war is about 600. These men or their families receive full pay from the railroad company for six months, and it is understood that probably the names will be kept on the payroll, at half rate, indefinitely.

The New York, New Haven & Hartford announces that a second dining car will be run on its "Merchants' Limited," the 5 p. m. train between Boston and New York, whenever the train consists of more than five parlor cars. Eastbound the second diner will be run between New Haven and Boston, and westbound between Boston and New Haven. This train now consists, on the heaviest days, of ten cars.

J. E. Long, safety engineer of the Canadian Government Railways—the Intercolonial—reports that during the first year of his incumbency, January 1, 1914, to January 1, 1915, fatal injuries to employees have fallen off from 19, in 1913, to 7, in 1914; injuries have been reduced from 695 to 523, and the number of trespassers killed dropped from 22 to 13. Mr. Long, who was formerly in the claim department of the New York Central, at New York City, is also editor of the Canadian Government Railways Employees' Magazine.

Peter M. Hoffman, coroner of Cook county, Illinois, has addressed a circular letter to various clubs and organizations in the county giving statistics of railroad accidents and pointing out the large preponderance of accidents to trespassers on railroad property. He encloses a copy of a bill which is before the Illinois legislature to prohibit trespassing and urges efforts on the part of the organizations to secure its passage. He shows that in 1914 there were 282 people killed in Cook county by railroads or on railroad tracks. Of these 13 were passengers, 100 were employees and 169 were trespassers. For the 10 years, 1905 to 1914, his records show that 80 passengers, 1,399 employees and 1,922 trespassers were killed.

"Welfare Work" is the title of a little pamphlet which has been issued by the Grand Trunk Railway of Canada, for the benefit of its employees, telling in brief compass about the superannuation, pension, provident and other beneficial funds maintained by the road, or by the road in conjunction with employees. The superannuation fund, for indoor employees, was established more than forty years ago, this company being the first in America to start such a fund on a comprehensive scale. The employees, as a rule, contributed one-half the money necessary to maintain the fund. Each employee paid 2½ per cent of his pay, monthly, and membership was compulsory on all who entered the service after October 1, 1874. Recently the contribution has been reduced from 2½ per cent to 1½ per cent; but since 1908 the company has paid pensions regularly so that the superannuation fund will be terminated. The pension fund now has on its rolls 730 employees, exclusive of those who had retired from service under the superannuation plan. The pension fund is maintained wholly by the company. The provident fund pays benefits in case of sickness and of death, and during 1914 disbursed about $100,000 for death benefits, and more than that sum for sick benefits. The pamphlet notices briefly the railroad Y. M. C. A. and its facilities for recreation, the safety-first movement, the plans for instruction in first aid to the injured and the schools maintained by the company for training apprentices. About 550 apprentices are now taking instruction.

New Railroad Laws in Texas

The legislature of Texas has concluded its session of two months and a final review shows that it has passed only a few general laws affecting railroads. The most important, perhaps, is that requiring employees to be paid twice a month. Another one provides that employees of railroads (and of certain other concerns as well) shall be free to choose the company from which they shall get surety bonds. The railroads now provide bonds without cost to the employee.

The railroad commission is authorized, by one of the new laws, to require railroads to make track connections with industries.

There was a full crew law but it died on the calendar as did the bill to require sheds to be built at all points where there are ten or more car repairers at work.

On the whole it appears to many careful observers that the anti-railroad spirit among the Texas law makers is very much abated.

Safety First in New Mexico

R. P. Kyle, safety supervisor of the El Paso & South Western, has issued a circular addressed to new employees in which he says:

"You will note that this railroad is active in SAFETY FIRST. The management is doing everything possible to make working conditions safe, and the present employees—the men with whom you will work—are proud of their record. . . .

"If you are with the road, there may be conditions that can be improved that you will notice at once, which have been overlooked by men working with the road for some time. The Safety Bureau invites you to make all suggestions for safety that you can, and it is your duty as an employee to do so. . . .

"To look out for your own safety is not all. You are working with many other men and in this brotherhood of men we treat our neighbor as ourself. . . . Be sure that the other man [as well as yourself] is safe.

"When you get to work, look around and see the men who are thought most of by the company, who have been here the longest, and who get along the best. They are the safe men, the workers, and the polite men. . . ."

Anti-Full Crew Law Campaign

The joint committee of the New Jersey legislature held a hearing on Monday of this week on the bill to repeal the full crew law. The speakers supporting the repeal were marshalled by M. A. Beeman, secretary of the New Jersey State Chamber of Commerce. Arguments were made by J. E. Reynolds of the Central of New Jersey, and George S. Patterson of the Pennsylvania. Testimony was given by C. H. Stein, superintendent of the Central division of the Central Railroad of New Jersey. The railroads presented a great mass of testimony in the shape of resolutions of chambers of commerce and other bodies, and editorials from newspapers; petitions were presented signed by great numbers of voters.

The legislature of Pennsylvania has held hearings at Harrisburg this week to listen to the arguments for the repeal of the full crew law, and next week will listen to those opposed to repeal.

R. L. O'Donnell, chairman of the committee representing the railroads of New Jersey and Pennsylvania continues to send out additional evidence of the unjust workings of the full crew laws of those states, and of the interest among the citizens, now constantly spreading, in the repeal or amendment of the law so as to put the regulation of train crews by the state in the hands of the Public Service Commissions. A number of railway surgeons report that injuries among trainmen are more numerous since the addition of the extra man to the train crew; and that the newer men are most likely to be found among the injured.

REVENUES AND EXPENSES OF RAILWAYS

SEVEN MONTHS OF FISCAL YEAR ENDING JUNE 30, 1915—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total, inc. misc.	Operating expenses: Maintenance: Way and structures.	Of equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.	Net operating revenue (or deficit).	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Louisville, Henderson & St. Louis	200	$547,269	$240,183	$840,181	$171,790	$121,837	$37,482	$286,390	.....	$21,946	$639,445	$200,736	$26,600	$174,088	—$22,000
Michigan Central	1,800	11,911,588	5,485,207	19,769,016	2,150,894	3,089,952	453,325	8,103,956	$356,748	393,563	14,548,438	5,220,578	925,350	4,291,833	921,957
Midland Valley	380	572,057	255,658	880,775	171,927	153,440	14,392	286,029	.....	39,297	664,985	215,790	46,076	169,420	13,346
Minneapolis & St. Louis	1,646	4,617,969	1,196,931	6,162,055	692,695	872,701	124,450	2,315,942	376	145,167	4,151,331	2,010,724	275,767	1,734,956	171,860
Minn., St. Paul & Sault Ste. Marie	4,102	12,262,122	3,801,206	17,371,370	1,969,163	2,461,833	337,317	5,504,371	104,762	343,502	10,668,639	6,702,731	714,102	5,988,629	—84,526
Missouri & North Arkansas	365	452,657	228,398	732,949	205,653	153,030	24,750	361,093	.....	39,996	784,520	—51,572	42,000	—93,899	—147,144
Missouri, Kansas & Texas System	3,865	13,478,818	5,145,422	20,030,005	2,628,211	2,790,496	390,453	7,197,076	185,803	614,234	13,715,115	6,314,890	765,999	5,545,228	707,003
Missouri, Oklahoma & Gulf	334	560,691	140,937	735,555	157,804	118,879	28,922	333,963	745	38,751	679,064	56,491	45,302	10,718	—11,723
Missouri, Oklahoma & Gulf Ry. of Texas	19	75,927	2,312	79,532	11,443	13,111	1,572	30,748	.....	3,737	60,611	18,921	1,320	17,601	9,106
Missouri Pacific	3,920	13,183,325	2,916,149	17,506,541	2,205,586	3,262,425	423,452	6,695,928	51,212	422,508	13,061,111	4,445,430	690,130	3,746,806	1,455,913
Morgan's La. & Texas R. R. & S. S. Co.	405	1,886,034	635,402	2,757,724	329,131	501,330	79,341	1,062,304	17,754	83,443	2,072,837	674,887	138,868	532,690	—86,044
Nashville, Chattanooga & St. Louis	1,231	4,385,840	1,567,906	6,511,797	861,716	1,327,013	311,091	2,652,553	64,915	207,407	5,424,694	1,087,103	190,491	895,901	—514,329
Nevada Northern	165	518,046	57,564	599,898	114,187	95,523	3,309	156,545	451	26,940	396,955	202,943	35,246	167,645	—299,391
New Orleans, Mobile & Chicago	403	819,678	182,909	1,060,381	206,465	145,172	26,711	370,433	—23	46,939	795,696	264,686	43,885	220,706	—242,025
New Orleans, Texas & Mexico	286	728,548	140,942	915,505	194,448	110,676	26,692	369,259	.....	64,483	765,558	149,947	11,583	138,364	—36,659
†New York Central Railroad Co.	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New York, Ontario & Western	568	3,715,849	1,088,420	5,574,024	730,326	1,009,740	56,889	2,130,299	.....	108,893	4,036,147	1,537,877	138,824	1,399,021	49,097
New York, Susquehanna & Western	140	1,280,441	313,388	1,777,913	178,567	209,793	13,757	807,878	.....	38,878	1,248,743	529,170	18,062	499,643	99,826
Norfolk & Western	2,044	20,610,477	2,876,383	24,480,169	3,348,684	4,816,803	410,939	7,395,662	66,066	486,309	16,181,747	8,298,422	1,038,000	7,260,308	—533,452
Northwestern Pacific	401	882,574	1,118,132	2,250,273	394,257	285,554	33,018	833,765	.....	60,529	1,575,708	674,565	112,061	562,419	—64,198
Oahu Railway & Land Co.	109	543,161	156,878	747,966	74,863	62,591	4,535	150,819	.....	30,591	323,399	424,567	50,187	374,380	19,121
Oregon Short Line	2,162	8,835,244	2,713,893	12,602,019	1,721,989	1,682,194	212,007	3,097,685	190,671	386,152	7,222,018	5,380,001	742,601	4,636,153	—913,418
Oregon-Washington R. R. & Nav. Co.	2,028	6,056,815	2,671,592	9,541,656	1,085,505	1,124,810	270,448	3,141,500	89,186	400,030	6,050,834	3,490,722	657,908	2,831,715	204,989
Panhandle & Santa Fe	668	1,817,345	401,110	2,329,215	418,105	452,594	26,453	738,174	.....	61,088	1,696,414	632,801	62,152	569,634	345,157
Pere Marquette	2,312	7,319,970	2,524,977	10,758,799	957,430	2,125,937	227,615	4,166,429	34,235	307,203	7,815,862	2,942,937	370,951	2,570,433	1,724,414
Philadelphia & Reading	1,120	21,964,476	3,973,984	27,264,770	2,597,988	5,009,747	299,598	9,803,594	100,613	486,502	18,290,359	8,974,411	700,543	8,270,224	—1,436,282
Philadelphia, Baltimore & Washington	717	5,786,110	4,956,739	11,975,916	1,841,840	2,231,460	177,330	5,109,686	93	310,341	9,670,751	2,305,166	403,724	1,900,554	159,140
Pittsburgh & Lake Erie	225	7,128,668	1,001,195	8,494,526	1,156,011	1,919,331	102,471	2,345,441	23,904	195,959	5,743,117	2,751,409	360,096	2,391,188	—1,505,911
Pittsburgh, Cincinnati, Chic. & St. Louis	1,479	15,352,515	4,866,145	22,887,197	2,992,097	4,417,751	461,586	8,542,088	168,958	549,474	17,131,955	5,755,243	1,148,623	4,604,887	—46,695
Pittsburgh, Shawmut & Northern	294	1,036,704	76,315	1,127,780	221,859	304,774	10,914	371,992	.....	28,481	938,019	189,761	11,415	178,346	21,622
Port Reading	21	734,680	.....	891,693	104,743	60,082	271	303,414	.....	2,654	471,163	420,530	84,000	336,530	558
Richmond, Fredericksburg & Potomac	88	806,030	547,154	1,567,420	144,273	211,799	24,800	606,516	28,756	50,031	1,066,175	501,244	49,974	451,117	—31,638
Rutland	468	1,128,423	704,887	2,088,667	259,306	356,311	57,298	818,908	8,566	40,939	1,541,327	547,340	120,219	427,121	—86,348
St. Joseph & Grand Island	258	697,888	184,901	953,142	163,726	141,802	33,228	342,467	.....	37,506	718,728	234,414	57,163	177,197	76,707
St. Louis & San Francisco	4,746	16,678,457	6,324,877	24,591,713	3,404,970	3,903,685	454,216	8,271,711	.....	606,688	16,641,270	7,950,443	712,224	7,226,911	—11,113
St. Louis, Iron Mountain & Southern	3,365	13,590,926	3,244,186	18,218,364	2,618,261	3,250,109	403,618	5,791,124	59,356	434,411	12,556,878	5,661,486	789,224	4,864,150	—1,829,034
St. Louis Merchants' Bridge Terminal	9	.....	1,295	1,085,806	141,664	48,491	5,443	549,299	.....	46,775	791,672	294,134	50,489	243,637	100,848
St. Louis, San Francisco & Texas	235	518,888	194,081	760,110	176,419	124,058	16,333	338,129	.....	32,597	687,537	72,573	8,917	63,626	—163,073
St. Louis Southwestern	943	3,244,866	746,968	4,241,057	528,544	741,127	181,456	1,197,944	23,494	184,249	2,855,456	1,385,602	220,955	1,164,095	—693,298
St. Louis Southwestern of Texas	811	1,530,951	594,963	2,306,049	551,157	579,606	85,953	1,070,706	6,010	125,674	2,387,837	—81,788	102,109	—184,573	—245,297
San Antonio & Aransas Pass	724	1,611,143	680,962	2,446,002	465,093	452,328	46,642	1,148,665	.....	81,172	2,193,713	252,289	86,079	165,706	—500,318
San Pedro, Los Angeles & Salt Lake	1,132	3,408,522	1,451,565	5,360,300	559,450	836,430	228,345	1,773,722	96,461	128,578	3,622,986	1,737,314	288,526	1,448,282	—195,525
Southern	7,036	23,787,531	10,303,697	37,418,578	5,132,926	6,697,395	1,295,419	13,796,627	236,238	1,201,364	28,268,686	9,149,893	1,490,281	7,650,505	—3,518,279
Spokane International	163	346,336	106,558	476,418	81,737	34,181	15,751	154,811	30	25,260	311,769	164,649	32,257	132,354	—120,523
Spokane, Portland & Seattle	556	1,665,658	898,591	2,820,724	329,629	248,369	53,838	636,113	24,293	94,148	1,386,319	1,434,405	373,800	1,058,999	—205,500
Tennessee Central	294	583,324	237,916	877,605	205,204	118,662	38,603	350,719	.....	47,116	760,165	117,440	31,326	86,012	—143,339
Terminal R. R. Ass'n of St. Louis	35	.....	1,289	1,601,996	131,262	85,208	6,441	561,805	.....	37,782	822,498	779,498	201,470	578,028	204,609
Texas & New Orleans	469	1,464,544	641,117	2,238,575	390,180	572,604	55,241	972,031	75,524	74,956	2,139,747	198,829	111,519	85,854	—128,970
Texas & Pacific	1,887	7,626,274	2,610,749	11,089,527	1,112,674	1,698,152	261,807	4,591,099	104,095	272,226	8,032,317	3,057,210	490,036	2,564,596	—264,964
Toledo & Ohio Central	446	2,653,746	379,941	3,229,124	458,194	589,579	56,453	1,191,911	12,425	70,654	2,379,215	849,908	158,354	689,797	133,120
Toledo, Peoria & Western	248	413,021	273,808	731,969	112,743	188,374	17,537	315,462	.....	25,206	659,322	72,648	42,700	29,943	31,466
Trinity & Brazos Valley	315	509,228	130,025	688,635	140,322	71,911	22,415	320,926	.....	57,351	612,925	75,709	30,135	45,367	—7,436
Ulster & Delaware	129	311,614	235,330	648,905	100,372	112,163	10,758	297,662	409	27,130	548,494	100,411	23,100	76,586	—59,722
Union Pacific	3,617	23,396,196	6,005,382	32,777,824	3,808,795	4,408,274	638,165	8,053,633	505,363	861,094	18,262,793	14,515,031	1,332,124	13,179,797	—19,089
Union R. R. of Baltimore	9	781,182	155,862	949,716	90,915	.....	.....	32,345	.....	17,334	140,594	809,122	39,782	769,340	—48,515
Vandalia	910	4,485,111	1,448,916	6,673,407	934,861	1,305,527	165,570	2,592,837	68,259	151,503	5,218,556	1,454,851	223,425	1,231,275	—325,864
Vicksburg, Shreveport & Pacific	171	464,457	287,489	843,018	144,493	191,125	25,002	329,938	16,664	35,446	742,668	100,350	50,107	50,243	—184,347
Virginia & Southwestern	240	987,121	101,305	1,121,409	171,399	255,249	17,191	326,115	.....	27,214	797,168	324,241	45,416	278,825	—44,847
Virginian	504	2,978,468	241,519	3,435,685	434,053	610,633	37,632	795,433	69,369	77,274	2,004,023	1,431,662	152,500	1,278,924	—446,059
Wabash	2,519	12,053,022	3,888,562	17,504,416	1,974,841	3,139,228	587,055	7,062,167	104,810	428,039	13,278,612	4,225,805	571,519	3,652,638	—40,509
Washington Southern	36	243,285	267,890	697,298	84,029	107,897	9,508	291,208	12,139	21,153	525,935	171,363	22,989	148,355	—16,041
Western Maryland	661	4,014,902	607,728	4,857,045	704,981	810,678	148,981	1,809,798	12,829	135,469	3,617,439	1,239,606	174,500	1,065,106	435,237
Western Pacific	943	2,517,475	681,067	3,399,428	733,948	446,002	176,217	1,137,781	77,581	147,167	2,718,697	680,730	202,712	476,934	—101,173
Western Ry. of Alabama	133	403,524	266,402	738,744	135,377	178,725	40,984	226,233	10,662	31,375	623,055	115,689	38,460	76,809	—134,287
Yazoo & Mississippi Valley	1,382	5,227,973	1,428,793	7,044,660	1,053,280	1,000,518	119,194	2,633,982	11,379	165,494	4,976,883	2,067,777	354,000	1,712,535	—658,332

†No cumulative figures reported, due to merger of N. Y. C. & H. River Railroad, Lake Shore & Michigan Southern and Chicago, Indiana & Southern.

Federal Valuation

Thomas W. Hulme, general secretary, announces that the conference with the division of valuation, of the Interstate Commerce Commission, scheduled for this week, has been postponed to a date yet to be fixed; probably April 19.

Summary of Revenues and Expenses of Steam Roads

The Bureau of Railway Economics' summary of revenues and expenses and comments thereon for December, 1914, are as follows:

Railways operating 228,604 miles of line are covered by this summary, or about 90 per cent of all steam railway mileage in the United States. Their operating revenues for the month of December, 1914, amounted to $226,318,739. This amount includes revenues from freight and passenger traffic, from carrying mail and express, and from miscellaneous sources connected with rail and auxiliary operations. Compared with December, 1913, these operating revenues show a decrease of $26,062,485. Total operating revenues per mile averaged $990 in December, 1914, and $1,116 in December, 1913, a decrease of $126, or 11.3 per cent.

Operating expenses, which include the cost of maintaining track and equipment, operating trains, securing traffic, and of administration, amounted to $166,484,716. This was $19,073,260 less than for December, 1913. These operating expenses per mile of line averaged $728 in December, 1914, and $821 in December, 1913, a decrease of $93 per mile, or 11.3 per cent.

Net operating revenue, that is, total operating revenues of rail and auxiliary operations less operating expenses, amounted to $59,834,023, which was $6,989,225 less than for December, 1913. Net operating revenue per mile of line averaged $262 in December, 1914, and $296 in December, 1913, a decrease of $34 per mile, or 11.4 per cent.

Taxes for the month of December amounted to $10,090,035 or $44 per mile, a decrease of 12.1 per cent from December, 1913.

Operating income, which is net revenue from rail and auxiliary operations, less uncollectible revenues and taxes, averaged $217 per mile of line, and in December, 1913, $245, thus decreasing $28, or 11.4 per cent. Operating income for each mile of line for each day in December averaged $7.01, and in December, 1913, $7.91. Operating income is that proportion of their operating receipts which remains available to the railways for rentals, interest on bonds, appropriations for betterments, improvements, new construction, and for dividends.

The railways of the Eastern district show a decrease in total operating revenues per mile of line as compared with December, 1913, of 11.8 per cent, those of the Southern district a decrease of 18.3 per cent, and those of the Western district a decrease of 7.3 per cent.

Operating expenses per mile decreased 11.5 per cent in the East, decreased 15.3 per cent in the South, and decreased 8.8 per cent in the West. Net operating revenue per mile decreased 13.1 per cent in the East, decreased 24.8 per cent in the South, and decreased 4.1 per cent in the West.

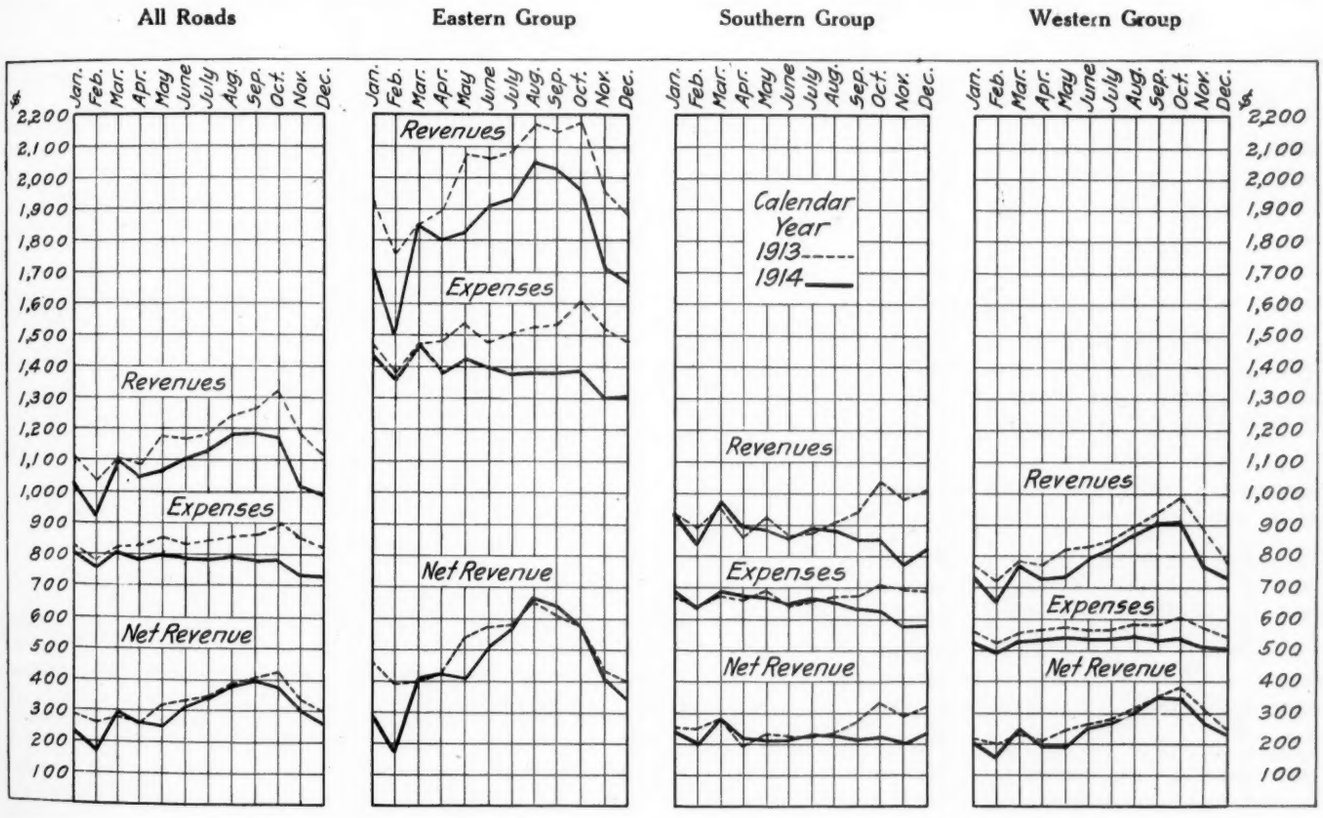
Taxes per mile show a decrease of 14.7 per cent in the East, a decrease of 9.6 per cent in the South and a decrease of 10.4 per cent in the West. Operating income per mile decreased 12.8 per cent in the East, decreased 27.0 per cent in the South, and decreased 2.9 per cent in the West.

The operating ratio for December, that is, the per cent of total operating revenues absorbed in operating expenses, was 73.6 per cent, which is comparable with 73.5 per cent in December, 1913, and 69.0 per cent in December, 1912. The operating ratio in the Eastern district for December was 79.2 per cent, as compared with 79.0 per cent in 1913; was 71.1 per cent in the Southern district, as compared with 68.6 per cent in 1913; was 68.6 per cent in the Western district, as compared with 69.6 per cent in 1913.

Comparison of returns for six months of the current fiscal year with the corresponding months of the previous fiscal year reveals a decrease in total operating revenues per mile of 8.6 per cent, a decrease in total operating expenses per mile of 9.8 per cent, and a decrease in net operating revenue per mile of 5.9 per cent.

This net operating revenue per mile decreased 1.1 per cent in the East as compared with the corresponding period of the previous year, decreased 19.7 per cent in the South, and decreased 5.4 per cent in the West.

Total operating revenues for the calendar year 1914 amounted to $2,935,018,985. This was a decrease from the previous year of $210,756,597, which is equivalent to $1,065, or 7.6 per cent, per



Monthly Revenues and Expenses per Mile of Line in 1914

mile of line. Operating expenses amounted to $2,124,918,955, which was a decrease of $137,165,191, equivalent to $703, or 7.0 per cent, per mile. Net operating revenue amounted to $810,100,030, a decrease of $73,591,406, equivalent to $362, or 9.3 per cent, per mile. Operating income per mile of line decreased $382, or 11.5 per cent.

The railways of the Eastern district show a decrease in operating income per mile of 12.5 per cent, the railways of the Southern district a decrease of 15.9 per cent, and the railways of the Western district a decrease of 8.9 per cent. All three districts show decreases in total operating revenues per mile and in operating expenses per mile, but in no district did the decreases in operating expenses overcome the decreases in revenues. Taxes per mile decreased 0.3 per cent in the East, increased 7.9 per cent in the South, and increased 5.6 per cent in the West.

The following table shows the per cent of operating revenues consumed by such class of expenses:

PER CENT OF TOTAL OPERATING REVENUES

	December, 1914				Six months of the fiscal yr. 1915
	United States	Eastern District	Southern District	Western District	
Freight revenue	68.3	67.3	70.8	68.3	68.3
Passenger revenue	22.0	22.0	21.2	22.4	22.6
Mail revenue	2.1	1.8	1.8	2.6	1.9
Express revenue	2.7	2.8	2.9	2.6	2.3
All other revenues	4.9	6.1	3.3	4.1	4.9
Maint. of way and structures	11.2	11.7	11.7	10.6	12.7
Maintenance of equipment	17.9	20.0	18.0	15.6	16.9
Traffic expenses	2.2	1.9	2.7	2.2	2.0
Transportation expenses	38.8	41.9	35.7	36.9	34.5
General expenses	2.9	2.9	2.9	2.8	2.4
All other expenses	0.6	0.8	0.1	0.5	0.5
Total operating expenses	73.6	79.2	71.1	68.6	69.0

Mail Pay Controversy

In a statement given to last Monday morning's papers, Postmaster General Burleson attacked the railroads for their activity in getting the Senate to reject the post office appropriation bill on the closing day of the last session of Congress, declaring that they had carried on their propaganda by means of one-sided, prejudiced and biased statements, designed to mislead the public mind. That the deficit in the operations of the post office department during the current fiscal year is to be attributed to the parcel post is, says Mr. Burleson, an absurd falsehood. "Were it not for the parcel post the coming postal deficit would be much larger than it will be," says Mr. Burleson. He continues:

"Notwithstanding the equitable and liberal character of the legislation (proposed by the department), it was bitterly fought throughout its several legislative stages by the so-called railway mail pay committee, an organization representing certain of the railroads. This committee's emissaries were kept almost constantly in Washington, and, through an expensively maintained press bureau, the country was flooded with a propaganda in which the attitude of the Post Office Department and the action of the House of Representatives were grossly misrepresented. . . . The railroads are saying that the Post Office Department's attempt to remedy the present situation was an attempt at railroad confiscation. No! It was, and is, a determined, well considered effort to end a system under which the postal authorities are compelled to stand helplessly by while the railroads loot the postal revenues.

"Although the railways contend that they are underpaid for carrying the mails, the facts are that they are overpaid and that they are receiving from the government amounts which, for hauls of any considerable length, exceed by about two to one the amounts they receive from the express companies for like and similar service. . . . The proposed change to the space system at the rates granted in the legislation which failed March 4 last, while giving the railroads fully as much per car-mile as they are now getting, would place the transportation facilities paid for by the government more completely under the control of the postal authorities."

Senator John W. Weeks, of Massachusetts, at once replied to Mr. Burleson, calling attention to the extraordinary feature of the bill presented by the department, giving the postmaster general unheard of power in regulating the rates for transportation of mails by the railways. Senator Weeks resents the charge that a "railroad lobby" had anything to do with the action of the Senate. Thoughtful senators felt compelled to take a stand against the passage of an ill-advised measure, in the closing days of the session, without adequate debate. (Mr. Weeks was a member of the Bourne committee, whose report was noticed in the *Railway Age Gazette*, September 4, 1914, page 435.)

Ralph Peters, chairman of the railways' committee on mail pay, also replied to Mr. Burleson. Referring to the statement alleging the "looting" of the government revenues, he called attention to the report of the Bourne committee, in which an increase of pay for the railroads was recommended. "Was Senator Bourne's committee duped by the railroads, or did his committee become a party to the conspiracy to steal? . . . The fact is that Mr. Burleson, through lack of understanding of the postal service and through reliance upon advisers who were accused by the joint bi-partisan commission of Congress [the Bourne committee] of ignorance of their duties and greed for arbitrary power, is himself permitting the government of the United States to rob the railroads of at least half what is due them for carrying the parcel post. The railroads defy the postmaster general to point to a single act of their railway mail pay committee, in its efforts to present the facts in this case to the people, which has not been absolutely legitimate. . . ."

Mr. Peters has issued a circular quoting a dozen newspapers in condemnation of the policy of the Post Office Department in this matter. In this connection he reprints an article from the Ogden (Utah) Standard of February 2, which says:

"No one trouble of the railroads is more perplexing than that of the parcel post. The mail trains are being delayed while postmasters supervise the loading of this new mail matter, and cars are being added to those trains without extra compensation. Over at Wells, Nev., the agent of the Southern Pacific, without wishing any one bad luck, is hoping the warehouse burns down where eighty tons of grain are held for shipment, sack by sack, through the parcel post. One day last week a fast mail train was delayed by the loading of two tons of wheat as parcel post, and early in the same week a carload of potatoes was mailed from Deeth, Nev., to Halleck. . . ."

Evidence in Enginemen's Arbitration Concluded

The introduction of evidence in the hearing at Chicago before the board of arbitration on the wage demands of the engineers and firemen of the western railroads was concluded on March 18. The hearings were begun in Chicago on November 30, and its sessions have been continuous, having been held every day except Saturday and Sunday, except for brief intermissions during the holidays. It was announced that the board would continue to hold executive sessions daily until March 29, when it will hear the final arguments on behalf of the railroads and the enginemen. The briefs will be submitted to the board and the oral arguments will be made by President W. S. Carter of the Brotherhood of Locomotive Firemen and Enginemen, W. S. Stone, grand chief of the Brotherhood of Locomotive Engineers, and James M. Sheean, attorney for the Conference Committee of Managers. Three days will be allowed for argument and the board will render its decision not later than April 20.

The representatives of the enginemen concluded their rebuttal testimony on March 17, and J. H. Keefe, assistant general manager of the Gulf, Colorado & Santa Fe, was the only witness called in rebuttal by the railroads. In refutation of allegations made by the representatives of the brotherhoods that the original exhibit of the railways as to earnings of all engineers and firemen was incorrect in specific cases, Mr. Keefe produced the actual pay rolls and pay checks endorsed by the employees. He also presented figures as to the financial condition of the roads for the seven months of the present fiscal year ending January 31. The statement made by the railroads early in the case that many engineers earned larger salaries than the governors of some states, which was derided by the brotherhood officers during the hearing, was proved by Mr. Keefe in an exhibit showing that 344 engineers received more than $3,000 a year. The extreme illustration was the case of one engineer who earned $366.66 in October, 1913, or at the rate of about $4,500 a year.

MEETINGS AND CONVENTIONS

The following list gives the names of secretaries, dates of next or regular meetings, and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass. Next convention, May 4-7, 1915, Hotel Sherman, Chicago.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, Illinois Central, East St. Louis, Ill. Annual meeting, May 18-21, 1915, Richmond, Va.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next meeting, April 15-16, San Francisco, Cal.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York. Next session, May 19, 1915, New York.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—E. R. Woodson, 1300 Pennsylvania Ave., N. W., Washington, D. C. Annual convention, April 28, 1915, Piedmont Hotel, Atlanta, Ga.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—C. W. Egan, B. & O., Baltimore, Md. Annual meeting, May 19, 1915, Galveston, Tex.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawler Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meeting, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, C. & E. I., 922 McCormick Bldg., Chicago. Annual meeting, May 17-20, 1915, Hotel La Salle, Chicago.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York. Annual convention, May 25 to 28, 1915, Chicago, Ill.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 3d Friday in month, except, June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. N. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Friday in month, Kansas City.

RAILROAD MASTER TINNERS, COPPERSMITHS AND PIPEFITTERS' ASSOCIATION.—U. G. Thompson, C. & E. I., Danville, Ill. Annual meeting, May, 1915.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, L. S. & M. S., Box C, Collinwood, Ohio. Annual meeting, May 17-19, 1915, Hotel Sherman, Chicago.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, Hotel Utah Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, Piedmont Hotel, Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEWARK.—John J. Kautzmann, P. O. Box 238, Newark, N. J. Regular meetings, 1st Monday in month, except July and August, The Washington, Newark.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings last Tuesday in month, except June, July and August, Waldorf-Astoria, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Gen. Agt., Erie R. R., 1924 Oliver Bldg., Pittsburgh, Pa. Meetings bi-monthly, Pittsburgh. Annual meeting, 2d Monday in June.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library Bldg., St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, N. Y. C. R. R., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

WESTERN CANADA RAILWAY CLUB.—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Karpen Bldg., Chicago.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Annual meeting in January. Extra meetings, except in July and August, generally on other Monday evenings.

Traffic News

The Chicago, Milwaukee & St. Paul has announced that a traffic arrangement has been made with the Oregon Short Line, giving the St. Paul passenger trains an entrance into Yellowstone Park from Butte, Mont. Direct connections will be made with the limited trains, the Olympian and the Columbian.

The Boston & Maine has filed new passenger rates in Massachusetts, to go into effect April 1, following the suggestions of the Public Service Commission of the state which, in its report issued February 27, approved new tariffs of the New Haven road, but disapproved those of the Boston & Maine and Boston & Albany. The principal change, now made, as compared with the tariffs which were disapproved, is the addition of family tickets, good for 25 rides, which are to be sold at two cents a mile and to be valid for three months only. These take the place of tickets on which passengers now ride at about 1½ cents a mile. The general basis of rates on the Boston & Maine in Massachusetts will henceforth be: for single tickets 2½ cents a mile; mileage tickets 2¼ cents; family tickets two cents; monthly tickets, good for a round trip each day, at the existing rates of from 1¼ cents down to ½ cent a mile. There are other special tickets in use to a limited extent, in the territory near Boston, these having been introduced, in most cases, to meet the competition of street car lines.

State Fare Laws and Other Proposed Legislation

The bill to increase the state passenger fare in Illinois from 2 to 2½ cents a mile was introduced in the Illinois legislature last week. The railroad committee in charge of the Illinois campaign has compiled a pamphlet of 32 pages containing editorials and articles from the leading Illinois newspapers regarding the 2½ cent fare campaign, and copies have been mailed to each member of the general assembly at Springfield and to each newspaper publication in the state. The committee has received a letter from the Illinois division of the Travelers' Protective Association of America, protesting against any increase in the passenger fare unless the railroads will agree to reinstate the interchangeable mileage book which was discontinued on December 7, 1914; but with a promise to assist the roads in obtaining the increase if the roads will definitely agree to provide a 2,000 mile interchangeable mileage book at two cents a mile.

The Illinois railroads have sent to the Illinois legislature a petition signed by 80,000 people of the state favoring an increase of the state passenger fare to 2½ cents a mile.

The Nebraska legislature has killed the bill to increase intrastate passenger fares to 2½ cents a mile.

A committee of officers of railroads operating in Iowa appeared before a joint session of the House and Senate committees on railroads of the Iowa legislature on March 18, and asked for an increase of the state passenger fare from 2 to 2½ cents a mile. C. H. Markham, president of the Illinois Central, who has acted as spokesman for the railway men, said that the net earnings of the seven principal railroads of the state for the year 1914 represented a return of 7 per cent. on a valuation of only $29,254 per mile, while the same roads were valued for the purpose of taxation at $31,816 per mile.

A committee of railroad men, including James J. Hill, of the Great Northern; W. A. Gardner, president of the Chicago & North Western, and Edmund Pennington, president of the Minneapolis, St. Paul & Sault Ste. Marie, appeared before a committee of the Minnesota legislature on March 18, and presented arguments and statistics in favor of an increase of the state passenger fare to 2½ cents a mile. Mr. Hill told the committee that it cost more money per train mile to operate passenger trains than the railroads received.

Daniel Willard, president of the Baltimore & Ohio; G. L. Peck, vice-president of the Pennsylvania Lines, and M. R. Waite, general counsel for the Cincinnati, Hamilton & Dayton, spoke before the Public Utilities Committee of the House of the Ohio legislature last week in behalf of the request of the roads for an advance in state passenger fares from 2 to 2½ cents a mile. Another hearing was held before the committee on March 23.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The commission has announced that the carriers have submitted a new plan for making rates from eastern defined territories to intermountain territory. Hearings on this plan will be held before Examiner Thurtell on April 12.

In response to the recent petition of the express companies alleging that the schedule of rates which went into effect on February 1, 1914, is not adequate, the commission has granted a rehearing of the case. No date has as yet been set for the presentation of evidence.

The commission has suspended from March 25 to July 23 Erie tariffs proposing increased ferry rates for automobiles, wagons, etc., between New York and Jersey City. The commission believes that this ferry as part of the Erie is doing an interstate business and that it is as much subject to the act as the railroad itself.

The commission has suspended from March 27 to July 1 proposed advances in lake and rail, rail and lake and rail, lake and rail rates. The filing of the tariffs grew out of the decision in the Five Per Cent case. The commission declined to permit the 5 per cent on these particular rates and the carriers filed the tariffs making them the subject of a separate proceeding.

Lumber Rates to Eastern Territories

In re lumber rates to central freight association and trunk line territories. Opinion by the commission:

The commission finds that carriers' proposed cancellation of through routes and joints rates on lumber from points in Louisiana and Arkansas to central freight association and trunk line territories via East St. Louis, Ill., and the Toledo, St. Louis & Western and via Flinton, Ill., and the Illinois Southern is justified. (33 I. C. C., 322.)

Class Rates to Beloit, Wis.

H. Rosenblatt & Sons et al. v. Ann Arbor Railroad et al. Opinion by Commissioner McChord:

The commission finds that the class rates from central freight association and trunk line territories to Beloit, Wis., are not unreasonable or prejudicial in that they exceed the class rates from the same points of origin to Rockford, Ill. The fact that the rates to Beloit are made on combination through Chicago or Milwaukee, while the rates to Rockford are stated in percentages of the New York-Chicago rates, is not in itself proof of discrimination. (33 I. C. C., 324.)

Rates on Apples from Virginia

Eastern Fruit Growers' Association et al. v. Baltimore & Ohio et al. Opinion by Commissioner Clark:

The commission finds that defendants' rates on apples in carloads from producing points in Virginia, West Virginia, Maryland, Delaware and southern Pennsylvania to various sections of the country are not unreasonable nor discriminatory as compared with rates from New York and New England producing points. (33 I. C. C., 343.)

Divisions Determined by the Commission

In re rates on lumber and other forest products from points in Arkansas and other states to points in Iowa, Minnesota and other states. Opinion by Commissioner McChord:

The commission in this second supplemental order modifies its first supplemental order so as to prescribe that the rates on lumber from points on the St. Louis Southwestern to Des Moines, Ia., via the Wabash, shall divide 17¼ cents to the St. Louis Southwestern and 7¾ cents to the Wabash. The previous order allowed divisions of 16.5 cents to the St. Louis Southwestern and 8.5 cents to the Wabash, whereas the Wabash only wished 8 cents. (32 I. C. C., 484.)

Lumber Rates from Helena, Ark.

In re lumber rates from Helena, Ark., and other points to Omaha, Neb., Des Moines, Iowa, and other destinations. Opinion by Commissioner Hall:

The commission finds that the carriers have not justified proposed increased rates on yellow pine, cypress and hardwood lumber from southwestern points and points in Mississippi and eastern Louisiana to the Omaha group and various points in Missouri, Iowa, Kansas, Nebraska and South Dakota. (33 I. C. C., 297.)

Track Storage Charges at New York

Murphy Brothers v. New York Central. Opinion by Commissioner Clark:

The commission finds that carrier's rule relating to the assessment at New York of track-storage charges, and stating that time will be computed from first 7 a. m. after car is placed, is unjust in that it does not provide that time will be computed from the first 7 a. m. after placing cars on public delivery tracks, and after the day on which notice of arrival is sent to consignee. Reparation awarded. (33 I. C. C., 355.)

Import Rates Properly Applied

National Dock & Storage Warehouse Company v. Boston & Albany, et al. Opinion by Commissioner McChord:

The complainant, operating a public warehouse at East Boston, Mass., for the storage of all kinds of traffic, whether foreign or domestic alleges that there is discrimination against it in carrier's rule relating to import traffic shipped from Boston which reads as follows:

> Rates named herein apply only on property coming from foreign ports (other than ports in the maritime provinces and Newfoundland) into the United States and delivered to the rail carrier direct from ship's side or dock of the vessel bringing such property to Boston, or on such property received by the rail carrier from custom bonded warehouses or appraisers' stores (not internal revenue stores).

The commission finds, however, that the tariff is neither discriminatory nor prejudicial. (33 I. C. C., 330.)

Class Rates Between Stations in Louisiana

Opinion by Commissioner Daniels:

The complainant, the Lafayette Chamber of Commerce, attacked the joint class and commodity rates from St. Louis and defined territories to Lafayette, La., as being greater than the aggregate of the intermediate rates on interstate traffic via Baton Rouge, La. Morgan's Louisiana & Texas thereupon attempted to close the Baton Rouge gateway by cancelling the interstate application of the mileage rates from Baton Rouge to Lafayette and other points on its line. The tariff making this cancellation was suspended, whereupon the carrier also cancelled the tariff carrying the interstate application of a mileage scale of rates from Baton Rouge. The commission finds that the proposed closing of the Baton Rouge gateway is not justified. The former mileage rates from Baton Rouge are required to be restored, except that 20 miles may be added for Mississippi river transfer. The joint class and commodity rates from St. Louis and defined territories to Lafayette are not found on the record to be unlawful, but the case is held open for further investigation. (33 I. C. C., 302.)

STATE COMMISSIONS

The Illinois Public Utilities Commission has again suspended, until September 15, the proposed general increase of 5 per cent in intrastate freight rates in Illinois.

The Michigan Railroad Commission has given an estimate to the legislature that an increase in the state passenger fare to 2½ cents per mile would increase the annual passenger earnings of the Michigan roads by $3,815,390.

The Arkansas Railroad Commission has granted the application of the Jonesboro, Lake City & Eastern Railroad to be allowed to increase its passenger fares to 3 cents a mile. This was made possible by a bill passed by the recent legislature authorizing the commission to grant the increase if the road should satisfy the commission of the reasonableness of the advance.

Bills to make important changes in the public service company law of Pennsylvania were introduced in the legislature Tuesday

by Representative James O. Campbell, of Butler. One bill would take away the exclusive jurisdiction of the court of Dauphin county (Harrisburg) in appeals, and allow appeals to be taken to the common pleas court of any county. Another would divide the state into three districts for convenience of hearings and taking action on complaints. The districts would be left in the hands of the commission, but the law would fix the places where sittings are to be held—Philadelphia, Pittsburgh and Harrisburg.

Commissioner Mayfield of the Texas Railroad Commission has sent a telegram to J. W. Everman, general superintendent of the St. Louis Southwestern of Texas, protesting against the recent closing of the company's shops at Tyler, Tex., which threw out of employment some 300 or 400 men. The commissioner says in his telegram that the company's business is better than it has been for some time, requiring, as he is advised, "an extra switch engine to adequately handle the traffic," and that the road should be getting its equipment in condition to handle the large business expected this spring and summer. He says that unless the shops at Tyler are reopened and the men put back to work he will consider it his duty to move that the commission suspend further action on the application for an increase in freight rates pending investigation into the reason why the shops were closed. Mr. Everman said it was found absolutely necessary to close the shops at Tyler because of the decrease in earnings.

The State Corporation Commission of New Mexico, in reply to a resolution by the New Mexico legislature requesting information as to what steps the commission had taken, if any, in the matter of fixing a fare of three cents a mile to be charged by railway companies in the state, says that since the election of the first members of the commission in 1911, it has never received from any citizen, taxpayer, individual, firm or corporation any written complaint, either formal or informal, protesting against the passenger fare of four cents a mile, now charged locally by the majority of the railroads. The commission further states that if any verbal complaints were ever made to the commission it does not recall them. Although no complaints had been lodged with the commission it had instituted an investigation on its own motion in July, 1912, of the entire passenger situation in the state which covered a period of several months, and it was deemed advisable to allow the matter to rest, at least pending the clearing up of financial conditions throughout the United States. The pamphlet reply gives the results of the investigation of the conditions not only in New Mexico but in other states, which led the commission to the conclusion that a reduction was not justified.

The Rate Hearing Before Texas Commission

At the hearing last week before the Texas Railroad Commission on the application of the Texas railroads for a general advance in freight rates, Frank Kell, of Wichita Falls, told the commission that he shipped annually 15,000 carloads of freight and that he is in favor of a general advance in rates, not only on the commodities which he ships but on those affecting interests in which he is a stockholder. He said he had no interest in any railroad in Texas, but thought that their condition ought to be improved in order to promote the development of the state. Other testimony regarding the financial condition of each of the Texas railroads was introduced by officers of the various roads, who gave the commission figures showing the great increases in the cost of labor and the increased expenses caused by legislation and commission orders. F. B. McKay, general freight and passenger agent of the Texas Midland, testified that the road had lost money for years, but that it had kept out of the courts because it had a "fairy godmother" in the person of Mrs. Hetty Green, mother of the president of the road. I. A. Cottingham, assistant general manager of the Sunset-Central Lines, offered in evidence figures covering a revaluation of all the Sunset-Central properties in Texas. J. W. Terry, counsel for the Santa Fe Lines in Texas, presented a statement outlining the history and condition of the Gulf, Colorado & Santa Fe, saying that had it not been for the parent company the Texas lines of the Santa Fe system would have been in the hands of receivers "as often as the International & Great Northern." James Peabody, statistician for the Atchison, Topeka & Santa Fe, testified regarding the division of expenses between freight and passenger service and state and interstate service for some of the lines, based on the Oklahoma plan. George H. Schleyer, receiver and general manager of the St. Louis & San Francisco in Texas; A. B. Warner, vice-president of the Rock Island lines in Texas; J. A. Brown, general freight agent of the New Orleans, Texas & Mexico, W. B. Scott, president of the Sunset-Central Lines, and F. G. Pettibone, vice-president of the Gulf, Colorado & Santa Fe, were also among the witnesses who testified.

The hearing of the railroads' evidence was concluded on March 18. Hearings will be set later to allow the shippers to present their views.

COURT NEWS

One hundred and sixty-four shippers have filed suits against the receivers of the Wabash in the United States district court at St. Louis for claims aggregating $335,658, for alleged overcharges on freight by the road, between 1905, when the maximum freight law in Missouri became effective, and February, 1914, when an injunction restraining enforcement of the rates was dissolved.

The Oklahoma passenger fare case, in which the railroads are seeking to have the three-cent passenger fare restored, was begun before Judge Youmans of the United States district court at Oklahoma City on March 15. The roads party to the suit are the Atchison, Topeka & Santa Fe; St. Louis & San Francisco; Chicago, Rock Island & Pacific; Missouri, Kansas & Texas and Kansas City Southern. The first day of the hearing was devoted to testimony regarding the formula for the division of expenses, which was described by A. L. Conrad, assistant general auditor of the St. Louis & San Francisco. This formula divides expenses between freight and passenger service, state and interstate service and line haul and terminal expense. This was followed by testimony by representatives of individual roads applying the formula to their own accounts.

Right of Way—Acquisition

Under the Indiana statute authorizing railroad corporations to secure rights of way by condemnation or by purchase or by voluntary grants or donations, and in no other way, the Indiana Appellate Court, following previous decisions of that court and the Supreme Court, holds that such a right of way may also be acquired by estoppel, adverse possession, or license.—New Point v. Cleveland C. C. & St. L. (Ind.), 107 N. E., 560.

Time Limit for Claims for Loss or Damage to Freight

The Georgia Court of Appeals holds that where a shipper signs and accepts a bill of lading containing a clause stipulating that "claims for loss or damage shall be made in writing to the agent at point of delivery promptly after arrival of the property, and if delayed for more than ten days after the delivery of the property, or after due time for the delivery thereof, no carrier hereunder shall be liable in any event," it constitutes a binding contract. The clause is not void on the ground that the carrier seeks thereby to limit its liability, and does not give as consideration therefor extra service or monetary consideration to the shipper, or that it is contrary to the public policy of the state. Such a clause, when applied to shipments of perishable products, such as turnips, is not an unreasonable limitation as to the time in which the claim is to be presented. W. H. Mitchell & Co. v. Atlantic Coast Line (Ga.) 84 S. E. 227.

Unloading Freight Not Intrinsically Dangerous

A boy 14 years of age was allowed by the conductor of a freight train to ride in the caboose in consideration of his services in unloading light freight. While between two stations one or two cars immediately in front of the caboose were derailed and the boy, becoming frightened, jumped off the caboose and broke his leg. In an action by his father for the loss of his services it was alleged that the work the boy was allowed to do was dangerous and arduous, and the defendant and its agents were negligent in permitting him to ride upon the train. It was held by the Kentucky Court of Appeals that it is neither intrinsically hazardous nor obviously dangerous for a youth 14 years of age to assist in unloading light freight from a freight car and placing it on a station platform; nor is it necessarily

hazardous or dangerous for such youth to ride on the caboose of a freight train, or to be permitted to do so. Judgment for the plaintiff was therefore reversed. Chesapeake & O. v. Smith (Ky.) 172 S W. 1088.

Liability of Delivering Road

The Louisiana Supreme Court holds that, in the case of an interstate shipment of live stock, which was delivered in bad condition, owing to delays in transportation, the delivering carrier will not be held responsible in damages to the shipper, where the evidence shows that said carrier was not responsible to any appreciable extent for delay in transportation, and not at all for want of proper attention to the animals. Duvall v. Louisiana Western (La.) 67 So. 354.

Authority of Station Agent

In an action where the plaintiffs claimed to own a building which they had put up on the defendant's right of way, and for the alleged conversion of which they sought damages, it was held by the Nevada Supreme Court that the fact that a station agent and car foreman of a railroad assume to manage, in a general way, the company's business in the vicinity, does not warrant an inference of authority to lease or permit the construction of private dwellings on the right of way or to give away materials belonging to the company. Judgment for the plaintiffs was reversed, and a new trial ordered.—Mirodias v. Southern Pac. Co. (Nev.), 145 Pac., 912.

Improper Loading of Live Stock by Shipper

The Kentucky Court of Appeals says that it is well settled by the almost unanimous authorities that where the carrier furnishes a car to the shipper for the purpose of shipping live stock therein, and the latter loads the live stock himself, and in doing so he overcrowds the animals, or places in one compartment animals of different kinds, the risk of loss or injury is upon the shipper, being caused by his own act, or by his own act in conjunction with the inherent nature, propensities, and qualities of the animals themselves; and this whether the defective manner of loading be discoverable by the carrier or not, if it has not been actually discovered by it.—Illinois Cent. v. Rogers & Thomas (Ky.), 172 S. W., 948.

Knowledge of Danger—Assumption of Risk

A car inspector went between cars which he, erroneously, thought were coupled and would not be moved, without setting the warning lights required by the rule. It was the custom of switchmen to give notice before moving the cars or to refrain from moving them when they knew inspectors might be between them. In an action for his death it was alleged that the members of the switching crew were guilty of negligence in failing to notify him that they intended to make a second attempt to couple. The Texas Court of Civil Appeals held that it was negligence for the switching crew to move the cars, although the inspector did not set the warning light, and that there was no room for the operation of the doctrine of assumption of risk by the deceased; he having no reason to assume that the switchman would be negligent on this particular occasion.—Texarkana & Ft. S. v. Casey (Tex.), 172 S. W., 729.

Bonds by Shippers and Consignees

The Arkansas act of May 23, 1907, authorizes a shipper or consignee to execute to the carrier a bond conditioned that the "shipper" or "consignee" shall deliver to the carrier the original bill of lading, etc., and authorizes the carrier, on delivery of the bond, to deliver the goods to the shipper or consignee, without requiring surrender of the bill of lading. The Arkansas Supreme Court holds that the statute embraces all persons with whom a carrier deals in the receipt and delivery of goods transported by it. A consignor of freight which was consigned to itself, with direction to notify a milling company, notified the carrier that the shipment was intended for an elevator company, and authorized a substitution of that company for the milling company. The carrier in good faith made delivery to the elevator company. The delivery was held to be within a bond given by the elevator company, it being a "consignee" within the statute, though it subsequently developed that the elevator company was not legally entitled to delivery.—Chicago R. I. & P. v. Title G. & S. Co. (Ark.), 172 S. W., 263.

Injury Near Track—Unforeseen Result

A farm hand was plowing about 50 feet from a railroad track, when, just as a freight train passed at an unusually rapid speed, he was struck on the side by something which turned out to be an iron spike. This had presumably been picked up and hurled into the field by the passing train. In an action for his injuries the Texas Supreme Court held that, the spike being negligently permitted to be upon the track, or loose in the ties, the railroad would be responsible for injury proximately caused by such negligence as, in the exercise of reasonable diligence, the company might have foreseen the result therefrom. If the plaintiff had been lawfully on or near the track in discharge of a duty, and had received the injury, there might have been liability. But the occurrence, as stated, would be so rare that it could not be anticipated by the defendant, and the road therefore was held not liable. Trinity & B. V. v. Blackshear (Tex.), 172 S. W., 544.

Safe Appliances—Contributory Negligence

In an action by a fireman for injuries the negligence complained of was that the engine was not equipped with handholds for use by the fireman in going to light the headlight; that the plaintiff used the pilot light to steady himself; that the top of it broke off, and he fell to the ground. The Georgia Court of Appeals held that the injury must be attributed to the fault of the fireman. Ordinary diligence requires a master to furnish to his servant appliances reasonably suited for the uses intended; but the law does not exact extraordinary diligence by requiring of the master that instrumentalities intended for one use should be usable for every unintended use to which they might be casually or unexpectedly applied. And the master is not chargeable with negligence either because an appliance fails to serve a purpose not intended, or because the instrumentality was not inspected so as to discover that it was not suited for such unexpected and unintended use.—Williams v. Alabama G. S. (Ga.), 84 S. E., 149.

Hours of Service Law—"Employee"

The Hours of Service Act provides that it shall apply to any common carrier or carriers, their officers, agents, and employees engaged in the transportation of passengers or property by railroad from one state to another, and that "employees," as used therein, means persons actually engaged in or connected with the movement of any train. Following B. & O. v. Interstate Commerce Commission, 221 U. S. 612, 31 Sup. Ct., 621, the federal district court of Idaho, N. D., holds that the act did not apply to the engineer of a work train operated wholly within one state, though upon a line of railroad constituting a part of the company's through highway of interstate commerce, and though the train was engaged in hauling materials for the repair of the track over which interstate trains ran. United States v. Chicago, M. & P. S., 218 Fed., 701.

Interstate Commerce—Fuel for Interstate Traffic

The Kansas Supreme Court holds that an interstate railroad, when engaged in hauling cars of coal over its line from one point to another in the same state where their bulk was to be broken and some portions thereof afterwards used for fuel on engines running into other states, is not, by virtue thereof, engaged in interstate traffic. In an action for personal injuries the court held that the plaintiff, a fireman on a switching engine, which was, at the time he sustained his injuries by a derailment, hauling a train of cars loaded with such coal, was engaged in hauling coal which at a later date might become a part of interstate commerce, but that his work had no real and substantial connection with interstate commerce. The court said that the situation would be no different if, instead of coal, the shipment had consisted of articles intended to be used in the repair of a locomotive running from a point within the state to a point in another state. In such a case the mere fact that the consignee intended to attach the articles to a locomotive engaged in interstate commerce would not make the shipment within the state interstate in character. Barker v. Kansas City, M. & O. (Kan.), 146 Pac. 358.

Railway Officers

Executive, Financial, Legal and Accounting

L. E. Abbott has been appointed general claim agent of the Oregon Short Line, with headquarters at Salt Lake City, Utah, succeeding E. M. Bagley, resigned.

E. J. Pearson, first vice-president of the Missouri Pacific, has been elected vice-president of the Texas & Pacific, with headquarters at New Orleans, La., succeeding E. F. Kearney. He will be in charge of operation and will direct the construction of large terminals at New Orleans.

Operating

F. J. Hawn, superintendent of the Fort Worth division of the Texas & Pacific, has been appointed superintendent of transportation, with headquarters at Tyler, Tex., succeeding W. Mosby, assigned to other duties. H. D. Earl, superintendent of the Waco division, with headquarters at Tyler, Tex., has been transferred to Mount Pleasant, Tex., as division superintendent.

J. H. Clark, superintendent of floating equipment of the Baltimore & Ohio, at Baltimore, Md., has been appointed also assistant general superintendent of the New York division and general superintendent of the Staten Island lines, with headquarters at St. George, Staten Island, N. Y., succeeding W. H. Averell, promoted, and F. C. Syze, trainmaster at St. George, has been appointed assistant superintendent of the New York division and of the Staten Island lines.

Traffic

J. M. Beer has been appointed general freight agent of the Centerville, Albia & Southern, with office at Centerville, Iowa.

C. A. Blood, freight traffic manager of the Lehigh Valley, at New York, has been appointed traffic assistant, with office at New York.

Horace Booth, general freight agent of the International & Great Northern, has been appointed traffic manager, and L. M. Hogsett, assistant general freight agent, has been appointed general freight agent, both with headquarters at Houston, Tex.

F. B. Hillebrand, commercial agent of the Lehigh Valley at Toledo, Ohio, has been transferred in the same capacity to Detroit, Mich., succeeding G. H. McDevitt, deceased, and E. H. Schuttenberg, soliciting freight agent at Cleveland, has been appointed commercial agent at Toledo, succeeding Mr. Hillebrand.

James Horsburgh, Jr., general passenger agent of the Southern Pacific at San Francisco, Cal., has been transferred to Los Angeles, in a similar capacity, succeeding F. E. Batturs, who takes the place of Mr. Horsburgh at San Francisco. Eugene W. Clapp, assistant general freight agent at Tucson, Ariz., has been appointed general freight agent, with office at Los Angeles, Cal., succeeding J. G. Stubbs, who has been transferred to San Francisco as general freight agent. R. J. Smith, district freight and passenger agent at Philadelphia, Pa., has been transferred to Sacramento, Cal., in a similar capacity, in place of James O'Gara, who has been appointed freight and passenger agent at San Francisco. J. K. Butler has been appointed assistant general freight agent at San Francisco, and Blake D. Myers has been appointed district freight agent at that point.

Engineering and Rolling Stock

N. S. Airhart has resigned as master mechanic of the Missouri, Kansas & Texas at Denison, Tex.

William J. Tyers has been appointed general supervisor of the Grand Trunk, with headquarters at Montreal, Que., vice G. Dyson.

L. B. Wickersham, assistant engineer of the Spokane, Portland & Seattle, with headquarters at Portland, Ore., has resigned to engage in general engineering work.

The position of supervisor of track in the Louisville district of the Baltimore & Ohio Southwestern has been restored and the following supervisors have been appointed supervisors of track: T. Mahoney, with headquarters at Storrs, Ohio; D. Cassin and W. M. Downey, with headquarters at North Vernon, Ind., and T. Rowland, with headquarters at Seymour.

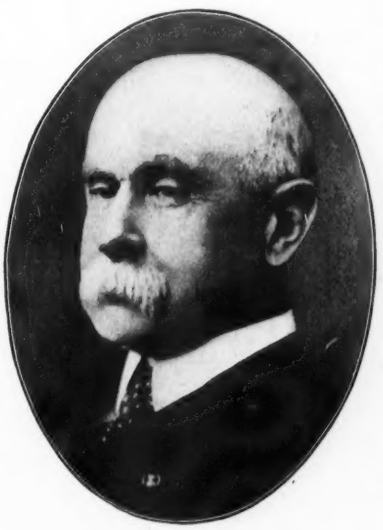
OBITUARY

W. B. McLoughlin, engineer of maintenance of way of the Cleveland, Cincinnati, Chicago & St. Louis, at Indianapolis, Ind., was injured in a motor car accident near Lawrenceburg Junction, Ind., on March 12, and died at St. Mary's hospital in Cincinnati on March 15.

John C. Breedlove, assistant engineer of the Northern Pacific at Tacoma, Wash., died suddenly on March 10 at St. Paul, Minn., aged 39 years. Mr. Breedlove was graduated from Cornell University in 1901, and was employed there for a year as instructor before entering railway service. About 10 years ago he left the position of assistant engineer of the Chicago, Rock Island & Pacific to go to the Northern Pacific, where he was in charge of much heavy grade reduction and improvement work, including the low grade cut-off from St. Regis, Mont., to Paradise. For the past four years he has had charge of the building of the Point Defiance low grade line between Tacoma, Wash., and Tenino, which was placed in operation a short time ago.

Charles Francis Adams

Charles Francis Adams, LL.D., the well known former chairman of the Massachusetts State Railroad Commission, president of the Union Pacific Railroad for six years, and prominent in other railroad affairs; a notable publicist and historian, died at his winter home in Washington, D. C., March 20, after an illness of a week.



C. F. Adams

Mr. Adams was born in Boston, May 27, 1835, son of Charles Francis Adams, minister to Great Britain during the time of the civil war; grandson of President John Quincy Adams and great grandson of John Adams, second president of the United States. He was graduated from Harvard College in 1856, and in 1858 was admitted to the bar in Massachusetts. He was a soldier in the civil war, rising to the position of colonel, and just before the close of the war was brevetted brigadier general. He was a member of the Massachusetts Railroad Commission ten years, 1869-1879, and was chairman for the last seven years of that time. In the years 1879-84 he was a member of the board of arbitration of the Trunk Line Association, and he was a Government director of the Union Pacific from 1877 to 1890. He was president of that road from 1884 to 1890.

Mr. Adams was a man of independent means, and devoted himself to the interest of the public all his life, a true "friend of the people." He was chairman of the committee which planned the metropolitan park system in Boston and vicinity, and an overseer of Harvard University from 1882 to 1907. He was prominent in political discussions, though he never sought public office, being always independent. In a speech delivered at Richmond, Va., in 1908 he said: "The people are governed too much. As to government regulation of monopolies, I don't believe in it. If a so-called monopoly is contrary to correct principles it will burst of itself. If it survives without governmental aid, it does so because it is in accord with economic truths. It then needs no regulation."

In October last Mr. Adams sent a long letter to President

Wilson showing facts justifying the request of the eastern railroads for authority to make a general increase in their freight rates. He told the President that the properties were deteriorating, that new capital could not be obtained to keep them up, and that eastern New England lines alone needed $100,000,000.

Mr. Adams was known as one of the foremost historians of the country, and he continued his studies up to the time of his death. A biography of his father, including a review of the diplomatic negotiations between the United States and Great Britain over civil war problems, is considered one of his notable books. His "Chapters of Erie" (1869) was a bold exposition of the evil management of that road. Other railroad books were "Railroads, Their Origin and Problems" (1878) and "Notes on Railroad Accidents" (1879). In 1913 Mr. Adams lectured at Oxford University, England, on American History. He was president of the Massachusetts Historical Society for many years, and a member of the American Academy of Arts and Letters and of many other societies.

Mr. Adams lived for years at Quincy, Mass., the ancestral home of the Adams family, but for several years past his home had been at South Lincoln, seventeen miles west of Boston. His last public appearance was at the town meeting in Lincoln, March 8, when he spoke at some length, advocating economy in civic expenditure. His wife, who survives him, was Mary Hone Ogden, of Newport, R. I. He leaves, also, two sons and three daughters.

By railroad men Mr. Adams will be best remembered by his work as a pioneer railroad commissioner. During his incumbency, as noted above, Massachusetts was a leader among the states. There had been state railroad commissions before, but he was the first man to make a national reputation in that field. And he made it by the normal method of dealing with the complex problems of his office in the broad spirit of true statesmanship. He informed himself fully as to facts; he exercised always an independent judgment and he looked at the conflicting interests of the railroads and the people with impartiality. Not the least element in his worth as a representative of the state was his ability as a writer, which enabled him to set situations before the people in such a way that they could appreciate them in their true light. His "Chapters of Erie," which, in a later time, might have been called "muckraking," effected its purpose in a similar way. It was forceful writing, backed by an independent and courageous character.

Lower Ganges Railway Bridge in India Completed.—The Viceroy of India on March 4 opened the Lower Ganges bridge at Sara Ghat, the eastern terminus of the meter-gage section of the Eastern Bengal Railway, thus inaugurating direct railway passenger communication across the river. It is expected that as a result of the opening of the bridge there will be a great development in the railway facilities of Northern Bengal and Assam, and the hope is expressed that the new lines to Gauhati and in Assam will form part of the trunk railway to Burma.

Progress of the Amur Railway.—The Russian state treasury has been authorized to spend $2,708,000 during 1915 for the temporary operation of the Amur Railway. Through communication along the whole length of the line will possibly be opened on January 1-14, 1917, and this year small credits only will be asked for, sufficient to cover expenditure which has been incurred in excess of estimates, and to construct a bridge across the River Amur. It is estimated that the total cost of construction of the railway, exclusive of expenditure in connection with the water supply, will amount to about $161,250,000.

Indian Railway Finance.—The railway program of the government of India for 1915-16 contemplates an expenditure of $40,000,000, which is proposed to be distributed as follows: $34,735,000 on open lines, including rolling stock; $3,598,500 on lines under construction; and $1,666,500 on new lines. The government's revised financial statement for 1914-15, which has recently been presented, when compared with the budget estimated published in March, 1914, shows a decrease of $10,330,000 in the revenue from state railways, and the budget estimate for 1915-16 compared with the revised estimate for 1914-15 shows a decrease of $1,294,500 in the net revenue from state railways.

Equipment and Supplies

LOCOMOTIVE BUILDING

The Idaho & South-Eastern is inquiring for 1 light Mogul type locomotive.

Frazar & Company, New York, have ordered one locomotive from the Baldwin Locomotive Company.

The Remington Arms-Union Metallic Cartridge Company, New York, has ordered one 4-wheel saddle tank switching locomotive from the American Locomotive Company.

The California Western Railroad & Navigation is reported to have ordered one saddle tank switching locomotive from the Baldwin Locomotive Company. This item has not been confirmed.

CAR BUILDING

The International & Great Northern is contemplating the purchase of 1,000 freight cars.

The Interborough Rapid Transit is reported to have ordered 478 all-steel subway car bodies from the Pullman Company, subject to the approval of the Public Service Commission, First district.

The Minneapolis, St. Paul, Rochester & Dubuque Electric Traction has ordered 45 80,000-lb. capacity box cars, 12 trailer passenger cars and two electric motor cars from the J. G. Brill Co.

The Illinois Traction System, reported in an unconfirmed item in the *Railway Age Gazette* of March 12 as having ordered 50 cars from the Haskell & Barker Car Company, has ordered 50 50-ton hopper bottom wooden coal cars from that company.

The Pennsylvania Equipment Company, Philadelphia, Pa., is in the market for 100 60,000-lb. capacity second hand box cars, several cabooses, one short passenger coach, one cheap passenger coach to be converted into a camp car and one cook car or cheap box car.

IRON AND STEEL

The Philadelphia & Reading has ordered 2,500 tons of steel rails from the Carnegie Steel Company.

The International & Great Northern has ordered 1,500 tons of rails from the Tennessee Coal, Iron & Railroad Company.

The Rhode Island Company has ordered 1,600 tons of girder rails from the Pennsylvania Steel Company and the Lorain Steel Company.

The Northern Ohio Traction Company recently ordered 500 tons of rails from the Algoma Steel Company, Sault Ste. Marie, Ont.

The Chesapeake & Ohio has ordered 16,000 tons of steel from the McClintic-Marshall Company for its bridge over the Ohio river at Sciotoville, Ohio.

The Virginian Railway has divided an order for 3,500 tons of steel rails among the Pennsylvania Steel Company, the Lackawanna Steel Company and another company.

The Interstate Bridge Commission has awarded a contract for 7,700 tons of steel for the truss spans for the Interstate bridge over the Columbia river, near Portland, Ore.

The New York Municipal Railways have ordered 800 tons of rails from the Pennsylvania Steel Company, and 1,600 tons of girder rails from the Lorain Steel Company.

The Keystone Construction Company, Kansas City, Mo., has ordered 9,000 tons of 70-lb. rails from the Illinois Steel Company. These rails will be used on a new road to be known as the Salina Northern, which the company is building in Kansas.

Supply Trade News

George Hills, an expert on electric welding, has been made head of the arc welding department of the Burke Electric Company, Erie, Pa.

Frederick A. Hall, formerly head of the chain hoist department of the Yale & Towne Company, died at his home in Passaic, N. J., on March 16.

G. Haven Peabody, western representative of the Lima Locomotive Corporation, Lima, Ohio, has resigned, effective April 15, to accept a position with the Lackawanna Steel Company.

W. C. Chapman, who for several years has been connected with the sales force of the Philadelphia branch office of Manning, Maxwell & Moore, Inc., has been appointed manager of that office.

Frederick Winslow Taylor, originator of the modern scientific management movement, died suddenly in Philadelphia on March 21 from pneumonia. Mr. Taylor was born at Germantown, Pa., on March 20, 1856. He attended Phillips Exeter Academy, but left before completing the course because of impaired eyesight. In 1883, however, he graduated from Stevens Institute of Technology with the degree of Mechanical Engineer. In 1878 he entered the employ of the Midvale Steel Company, with which company he was successively gang boss, assistant foreman, foreman of the machine shop, master mechanic, chief draftsman and chief engineer. He left the company in 1889 and began his special work of reorganizing the management of manufacturing establishments. Mr. Taylor was an inventor of considerable ability. Among his numerous inventions was the Taylor-White process of treating modern high-speed tools for which he received a personal gold medal from the Paris Exposition in 1900 and the Elliott Cresson medal of the Franklin Institute. Mr. Taylor was a member of the American Society of Mechanical Engineers, and served as its president in 1905 and 1906. He was the author of a number of technical books and articles, among the best known being "The Principles of Scientific Management," and "Shop Management," both published in 1911.

F. W. Taylor

E. L. Leeds, who since 1907 has been manager of the railroad equipment department of the Niles-Bement-Pond Company, New York, has been appointed general manager of sales of that company and the Pratt & Whitney Company, Hartford, Conn.

Frank N. Grigg, with offices at 1201-2 Virginia Railway and Power building, Richmond, Va., has been appointed sales agent for the Harlan & Hollingsworth Corporation, Wilmington, Del., and the car seat department of the Heywood Brothers & Wakefield Company, Wakefield, Mass.

H. C. Hopson, who for the last six years has been at the head of a department of the New York State Public Service Commission, Second district (Albany), has opened an office at 61 Broadway, New York City, where he is prepared to advise concerning financing, rates, reorganizations, accounting and valuations of railways and other public utilities. At Albany, Mr. Hopson had charge of the examinations of the accounts and records of corporations, in connection with the investigation of capitalization, rates and reorganizations.

Western Electric Company

In spite of the quiet condition of business, the Western Electric Company was able in its fiscal year ended December 31, 1914, to pay its usual dividends and earn a considerable surplus. Its sales for the year were $66,408,000 as against $77,532,860 in 1913, and $71,727,329 in 1912. There was also other income of $948,509, making a total of $67,356,993. From this there were deducted: cost of merchandise, $57,360,541; expenses, $5,472,944 taxes, $490,041 and an appropriation of $500,000 for the reserve for contingencies, leaving $3,533,467 available for dividends. Interest was paid of $862,507, and the usual dividends of $1,500,000, leaving $1,170,960 to be carried to surplus, as compared with $1,671,695 in 1913 and $1,067,410 in 1912. The total surplus on December 31, 1913, was $22,840,459, and on December 31, 1914, $24,011,419. The company's orders on hand on January 1, 1915, were $4,309,000 less in value than on January 1, 1914.

The Western Electric Company manufactures the telephone apparatus used by the Bell companies, and also does a general telephone and electrical manufacturing business. It is the largest manufacturer of telephonic apparatus in the world, and the largest distributor of electrical supplies in this country. On December 31, 1913, the company's real estate, buildings, equipment and machinery had a total value of $19,217,809. There were sundry investments valued at $9,349,059, which value may have to be reduced because of the war, and current assets of $44,902,342, of which $5,242,421 was cash. The capital stock outstanding is $15,000,000, a majority of this being owned by the American Telephone & Telegraph Company. There are also bonds outstanding of $15,000,000. The accounts payable on December 31, 1914, were $3,210,970. There were also reserves for depreciation of $11,449,912, for employees' benefit fund of $1,000,000, and for contingencies of $3,796,909, the surplus, as noted above, being $24,011,419.

TRADE PUBLICATIONS

MULTIPORT VALVE.—Cochrane Multiport Valves is the subject of a booklet of 72 pages just issued by the Harrison Safety Boiler Works, Philadelphia, which describes the multiport valves introduced by that company for back pressure relief and vacuum service, flow service in connection with mixed flow turbines, and check valve service with bleeder or extraction turbines. The essential idea of the multiport valve is the use of a number of small discs instead of one large disc, in order to secure greater safety, quietness, lightness or moving parts and tightness.

ELECTRIC HOISTS.—The Link-Belt Company, Chicago, in its bulletin No. 207 sets forth the special features of the Link-Belt electric hoists. These are of the monorail type, having a capacity up to four tons and are built with either a plain trolley, a geared trolley propelled by a hand chain, a motor driven trolley with pendant cords for operation from below, or with an operator's cage suspended from the hoist. These hoists may also be provided with shackle or hook suspension in place of the trolley, making them suitable for stationary work.

ENGINEERING CALCULATIONS.—This is the title of a 23-page booklet issued by Felt & Tarrant Manufacturing Company, Chicago, which deals with the application of the comptometer to calculating work in the drafting room and the estimating department for a variety of calculations involving addition, multiplication, division and subtraction. It is well illustrated and contains numerous examples of the operations for which the machine is being used. The booklet will be of interest to those in charge of engineering offices and drafting rooms generally.

LEHIGH VALLEY.—The Lehigh Valley has issued a booklet calling attention to its service in connection with the Panama Pacific Exposition. The booklet, which is intended to offer "First Aid to the Fair Goer," gives in concise form information relating to travel to and from the exposition, including fares, hotel rates, tours, etc., but it contains no description of the fairs themselves, since they will be described elsewhere. One of the features of the booklet is a map with all the railroads except the line of Lehigh Valley and Grand Trunk from New York to Chicago omitted, on which the intending traveler may mark the points of interest which he wishes to visit and which he may then take to the nearest Lehigh Valley agent, who will give him routes, rates and other necessary information.

Railway Construction

Alabama Roads.—The Perdido Lumber Company of Gateswood, Ala., is building a railroad, it is said, from Hollinger creek, south to a point on the Gulf of Mexico.

Arkansas Valley Interurban.—Efforts are now being made by this company to vote $30,000 in terminal aid bonds in the city of Hutchinson, Kan. It is said that if these bonds are voted the construction of the extension from Halstead, Kan., to Hutchinson will be started immediately.

Atlanta & Carolina Interurban.—According to press reports plans are being made to carry out the work on the line from Atlanta, Ga., east to Augusta, about 160 miles. In June, 1914, Ronald Ransom was appointed receiver, and up to that time, it is said, that about 30 miles had been graded and three miles of track laid.

Charleston-Isle of Palms Traction.—An officer writes that work will be started soon on an extension of this road. The company now operates an electric line from Mt. Pleasant, S. C., east to Isle of Palms, about 7.5 miles, and also operates a three-mile ferry line from Mt. Pleasant to Charleston. The extension work will be carried out by the company's forces. About two years ago extensions were projected from Isle of Palms east to McClellanville, about 30 miles, and from Mt. Pleasant to the Cooper river, thence over a concrete bridge, to be built over that river, to a terminal in the city of Charleston.

Fellsmere Railroad.—Work is now under way, it is said, building an extension to Broadmoor, Fla., 3.5 miles. This company now operates a railroad from Sebastian to Fellsmere, 9.94 miles.

Florida Roads (Electric).—According to press reports plans are being made to build an interurban line to connect Lakeland with other towns in Polk county, Fla. A. J. Holworthy, secretary, and G. C. Rogan, W. F. Sneed, M. F. Hetherington, S. F. Smith and A. J. Holworthy, members of the Board of Trade, at Lakeland, are back of the project.

Lula-Homer.—About 70 per cent of the grading on the proposed new line between Homer, Ga., and Lula, has been completed, according to a recent report from an official of that company. The line is to be 14 miles long, with a maximum curvature of 16 deg., and a maximum grade of 3 per cent. No bridges will be required. In connection with this road three depots will be built. S. S. Carter of Lula, Ga., is president, and D. G. Zeigler of Lula, is chief engineer.

North Carolina Roads.—Contracts are reported let to S. S. Royster and to O. Elan, Shelby, N. C., to build a railroad from Shelby north to Casar in Cleveland county, about 21 miles.

New York Roads (Electric).—Plans are being made by residents of Middletown, N. Y., and Walden, it is said, to build an electric line from the Wallkill Transit Company's line at Goshen north about 15 miles to a connection with the Orange County Traction Company's line at Walden.

Right of way has been secured and franchises are being asked for, it is said, to build an electric line from Jamestown, N. Y., north via Gowanda to Buffalo, about 70 miles. J. B. Anderson, Ellington, and F. E. Ward, Gowanda, are said to be interested in this project.

New York Roads.—Plans are being made by the MacIntyre Iron Company, it is said, to build a railroad from Sanford lake north of Tahawus, N. Y., east to Fort Ticonderoga, which is on the Delaware & Hudson and the Rutland Railroad, about 60 miles. The line is to be built to provide an outlet from ore fields owned by this company at Sanford lake.

New York Subways.—Bids are wanted, April 20, by the New York Public Service Commission, First district, for building Section No. 2 of Route No. 12 of the Eastern Parkway subway in the borough of Brooklyn. This section is from Prospect Park Plaza, under Eastern Parkway, to a point east of Nostrand avenue. The subway will be constructed on the double-deck plan.

The commission has approved the form of contract submitted by the Interborough Rapid Transit Company for the construction of a section of the West Farms subway connection. This section is to be built from the Third avenue elevated road, at a point near One Hundred and Forty-First street, through Willis and Bergen avenues in the borough of the Bronx, to a point near One Hundred and Forty-Ninth street, thence to a connection with the Lenox avenue branch of the existing subways.

Ocilla Southern.—Surveys are now being made at Macon, Ga., it is said, for an entrance of the Ocilla Southern into that city. The company now operates a line from Nashville north to Rochelle, 62.3 miles, and is building an extension from Rochelle north to Pope City, 7.3 miles. A further extension is projected north to Macon, about 73 miles and trackage rights may be secured over existing lines for part of the way. (February 26, p. 390.)

Ocmulgee Valley.—Work is to be started next month to complete a line from Lumber City, Ga., southwest to Jacksonville, about 20 miles. The construction work will probably be carried out by company forces, about 7 miles of track has already been laid. The line is to have maximum grades of 1 per cent, with a maximum curvature of 4 deg. The promoters expect to develop a traffic in lumber and farm products. The line will traverse a fine farming and timber land section, and the work will involve handling about 40,000 cu. yd. C. S. Smith, president; J. C. Work, chief engineer, Lumber City, Ga.

Pennsylvania Lines West.—Terminal tracks are now being laid to the new temporary freight shed of the Pennsylvania, located just south of Taylor street, near the Chicago river, Chicago, Ill., and preliminary work has been started on the new permanent freight terminal, which will be located between Polk and Taylor streets and near the Chicago river. The work of relocating the sewers incident to the construction of the new freight terminal is also being actively carried out.

Pennsylvania System.—The record of the mileage of the road on December 31, 1914, shows that the total length of main line on lines east of Pittsburgh, Pa., and Erie is 5,377 miles of first track, with 1,911 miles of second track, 559 miles of third track, 483 miles of fourth track, and 4,745 miles of company's sidings, a total of 13,075 miles. There was an increase of 28 miles of first track, 4 miles of second track and 54 miles of company's sidings, a total increase of 86 miles. On the Pennsylvania lines west of Pittsburgh and Erie the mileage is 3,108 miles of first track, 1,367 miles of second track, 222 miles of third track, 134 miles of fourth track and 2,672 miles of company's sidings, a total of 7,503 miles. During the year there was an increase of 14 miles of first track, 2 miles of third track, 5 miles of fourth track, and 43 miles of company's sidings, and there was a decrease of 6 miles of second track, making the total increase 58 miles. Mileage of the Vandalia Railroad is: first track 851 miles, second track 61 miles, third track 8 miles, and sidings 441 miles, a total of 1,361 miles. The grand total of all lines, including those in operation by and associated in interests with the Pennsylvania Railroad is 11,794 miles of first track, 3,734 miles of second track, 822 miles of third track, 636 miles of fourth track and 9,433 miles of company's sidings, a total of 26,419 miles. Of this 6,462 miles of first track are east and 5,332 miles are west of Pittsburgh and Erie.

Southern Railway.—This company is installing passing tracks of the lap type at Vantine, Archdale, Mt. Zion, Fair Forrest, Taylor, and Gaffney, between Charlotte, N. C., and Greenville, S. C., on the Washington-Atlanta line. Each of the sidings will accommodate four of the largest freight trains handled on this division. At each of these points an interlocking plant is being installed with distant signals, so that trains will not have to stop before entering the sidings. The passing tracks are being built to main line standards so that they can be later used as a part of double track.

Texas Roads.—Plans are being made to build a 28-mile railroad from Sierra Blanca, Tex., to new coal fields, which are to be developed. J. Shelby, El Paso, is said to be back of the project.

VALLEY & SILETZ.—The Valley & Siletz Railway is building a line from Independence, Ore., to Newport, a distance of about 45 miles. This line will connect with the Southern Pacific at Airlie, Ore., about 10 miles southwest of Independence. Grading will require the moving of about 25,000 yd. per mile. Nine Howe trusses, and 6,000 ft. of trestle work will be required. The maximum curvature on the line will be 10 deg., and the maximum grade 2 per cent. About 25 per cent of the grading work has been completed. The company's offices are in the Northwestern Bank building, Portland, Ore.

RAILWAY STRUCTURES

CARBONDALE, PA.—The Public Service Commission of Pennsylvania has approved plans, it is said, for the construction of a viaduct over the tracks of the Delaware & Hudson near Simpson. The estimated cost of the structure is $75,000, and is to be paid for jointly by the railway company and Lackawanna county.

CHICAGO, ILL.—The Atchison, Topeka & Santa Fe is completing plans for a petition to the city council for permission to build a fruit terminal on its property between Eighteenth and Twenty-second streets, and Wentworth avenue and the Chicago river. The terminal is to include an auction house, a banana house, a cold storage plant and team tracks to accommodate approximately 1,000 cars per day. If the council passes upon this petition favorably, construction work will be begun at once. A number of short streets will have to be closed and some grading done, as well as relocating old tracks and laying new ones. The value of the land on which this improvement is to be made is estimated at $3,000,000.

HAMILTON, ONT.—Plans are being made by the Toronto and Hamilton Highway Commission to build a steel bridge across the inlet of Burlington bay at Hamilton. The proposed structure will probably carry tracks for the operation of electric railway cars, and is to cost about $300,000.

HARRISBURG, PA.—A contract has been given by the Cumberland Valley to the Robert Grace Contracting Company, Pittsburgh, Pa., to build the new arch bridge over the Susquehanna river at Harrisburg, to replace the present steel deck truss bridge. The new bridge will carry two tracks; it will have 46 spans, and will be 4,000 ft. long. The cost of the new structure will be about $750,000. (February 26, p. 390.)

NEW ORLEANS, LA.—The Trans-Mississippi Terminal Railroad is making financial arrangements to build terminals for the Gould lines at New Orleans. The contract is reported let to J. W. Thompson, St. Louis, Mo.

OTTAWA, ONT.—The city officers of Ottawa will build a steel and concrete bridge over Rideau canal at Pretoria avenue, Ottawa. It will be a Strauss type, direct-lift structure, with three spans, and will carry double tracks for the operation of cars of the Ottawa Electric Railway Company. The estimated cost of the work is $80,000.

ELECTRIFICATION IN GREAT BRITAIN.—The London, Brighton & South Coast practically stopped all work on capital account on the outbreak of war, but has been obliged to proceed with the equipment of the suburban lines for electrical operation, not only because contracts were made and certain orders given, but because a considerable quantity of material had been delivered which would have seriously deteriorated if not used. The work of electrification on the London & South-Western Railway was stopped when the war broke out, but new financing last October was so successful that the work was then resumed. Owing, however, to scarcity of labor the progress is slow, and it will be three or four months before the first section, i. e., the lines from Waterloo to Kingston via Twickenham and via Malden can be ready for service. The report of this company states that the main powerhouse at Wimbledon and the substations at other places are practically completed, and the machinery is being erected. Several of the new electric trains have been constructed. Good progress has also been made with the placing of conductor rails, the bonding of track rails, and the laying of high-tension cables on the first section.

Railway Financial News

BOSTON & MAINE.—The bill for the reorganization of this road, which has been agreed upon by the Public Service Commissions of Maine, New Hampshire and Massachusetts has been laid before the legislatures of the several states. This bill was outlined in this column last week. It provides for the capitalization of the present floating indebtedness, but leaves it to the Public Service Commissions to provide for a gradual amortization of the deficit of income in preference to dividends on common stock, the provisions of this section to continue until July 1, 1916. There are provisions for taking over the Hampden Railroad and for demanding payment from Boston & Maine stockholders of a substantial assessment or its equivalent. There is a clause providing that any mortgage issued on the railroad property shall include all outstanding indebtedness.

The Vermont legislature has already discussed the bill, and it has been acted on favorably in the Senate, after being amended so as to require the new company, if one be organized, to be incorporated under Vermont law and to be specifically amenable to the Vermont Public Service Commission.

CHICAGO, ROCK ISLAND & PACIFIC.—John J. Quinlan and F. L. Forbes, vice-president and transfer agent, respectively, of the Chicago, Rock Island & Pacific Railway Company, have been charged in the criminal proceeding which had been brought by Warren C. Crane, a stockholder, to hold them amenable to the penal law for refusing access to the railway company's stock books. Forbes was discharged on the ground that it had not been proved that he was in control of the stock books, and Quinlan is held not guilty of wilfully refusing to allow the books to be inspected. The decision leaves Mr. Crane, as a member of the Amster committee, which is seeking to oust Quinlan and all the other Rock Island directors at the annual meeting of the stockholders on April 12, free to get the names, addresses, and the amount of the holdings of each stockholder of the Chicago, Rock Island & Pacific Railway. A vigorous canvass for proxies will now be made.

PENNSYLVANIA.—In the whole Pennsylvania Railroad System there are now 11,794 miles of road and 26,419 miles of track; lying in thirteen states and the District of Columbia. The company issues a statement to the effect that more than half of its 92,225 stockholders live in the states served by the railroad. There are more owners of Pennsylvania Railroad stock today than ever before in the history of the company. On the first of March 31,865 people who live in Pennsylvania—1,799 more than on March 1, 1914—were shareholders; in New York, 15,712; in New England and the rest of the country, 32,726. Despite the European war, the road on March 1, had 190 more foreign stockholders than it did a year before. The average holding is 108.27 shares, or 3.53 shares less than a year ago. The number of women shareholders is 44,469, and their average holding is 63 shares.

TEXAS & PACIFIC.—At the annual meeting of the stockholders in New York, March 17, nine new directors were chosen; but the Gould interests continue to be represented. Most of the new members, however, represent the new Missouri Pacific interests. The new directors are Charles H. Sabin, president of the Guaranty Trust Company; B. D. Caldwell, president of Wells, Fargo & Company; John I. Waterbury; Henry Ickelheimer, of Heidelbach, Ickelheimer & Company; Seward Prosser, president of the Bankers' Trust Company; N. S. Meldrum, of Blair & Company; T. L. Chadbourne, personal counsel of George J. Gould; Henry A. Bishop and William Church Osborne, who represents the Phelps-Dodge interests in the stock of the road. The members re-elected are George J. Gould, R. M. Gallaway, Benjamin Nicoll, R. C. Clowry, Kingdon Gould, Dunlevy Milbank, Henry E. Cooper and Howard Gould. Members of the old board not re-elected are: John P. Munn, Frank J. Gould, Edwin Gould, E. T. Jeffery, J. L. Slocum, Finley J. Shepard, O. B. Huntsman, Thomas J. Freeman and E. F. Kearney.

[ADVERTISEMENT.]

ANNUAL REPORTS

NEW YORK CENTRAL AND HUDSON RIVER RAILROAD—ANNUAL REPORT

To the Stockholders of

THE NEW YORK CENTRAL AND HUDSON RIVER RAILROAD COMPANY:

The following report, covering the operation of the New York Central & Hudson River Railroad and leased lines, the Boston & Albany Railroad and the St Lawrence & Adirondack Railway for the entire year ended December 31, 1914, is submitted by the Board of Directors elected April 15, 1914, whose term of office expired December 23, 1914, on the consolidation of the company with several allied organizations into a new corporation named The New York Central Railroad Company, to which your interests, as stockholders, were transferred.

The statements and tables contained in the report are in accordance with the new classification promulgated by the Interstate Commerce Commission. For the purpose of comparison the figures representing the transactions of the year 1913 have been revised.

The mileage embraced in the operation of the road is tabulated as follows:

	Miles
Main line and branches owned	1,835.55
Proprietary line	.18
*Leased line	1,583.97
Line operated under contract	71.59
Line operated under trackage rights	282.66
Total road operated	3,773.95

*The Dunkirk Allegheny Valley and Pittsburgh Railroad, 90.51 miles, is also leased by this company, but its mileage and operations are not included in this report. Separate accounts are kept and independent returns prepared in its behalf.

This figure shows an increase of 20.83 miles, as compared with the mileage reported December 31, accounted for as follows:

INCREASES DURING THE YEAR.

	Miles	
New branch from tower 34 to Charles Street, in the city of Rome	4.19	
Extension of Rome Branch on account of Rome improvement	4.04	
On Terminal Railway of Buffalo: track formerly classified as siding	.54	
On Beech Creek Railroad: a gauntlet track over Pine Creek	.11	
On Beech Creek Extension Railroad: by inclusion of the Hooverhurst & Southwestern Railroad and consequent change in terminals	3.90	
Trackage rights from Saranac Lake to Lake Placid	10.08	22.86

DECREASES DURING THE YEAR.

	Miles	
By change of line and connections and sundry adjustments	.67	
By abandonment of a portion of the Beech Creek Railroad	.80	
By abandonment of a portion of the Cherry Tree & Dixonville Railroad over which this company has trackage rights	.56	2.03
Making a net increase of		20.83

The capital stock outstanding on December 31, 1913, including the amount of the convertible value of capital stock of the companies consolidated on April 16, 1913, was $225,581,066.00 and no change has occurred in this amount during the year.

The mortgage, bonded and secured debt outstanding on December 31, 1913, was			$378,644,052.45
This has been added to as follows:			
Refunding and improvement bonds of 1914 bearing interest at the rate of four and one-half per cent per annum	$40,000,000.00		
This company's pro rata liability in connection with equipment trust certificates of 1913, bearing interest at the rate of four and one-half per cent per annum	2,600,823.97		
This company's liability in connection with B & A equipment trust certificates of 1912	2,128,000.00		
There has been included in this account the amount of a loan from the New York New Haven and Hartford Railroad Company in connection with the Grand Central Terminal Improvement	$1,310,000.00		
Reduced by annual payments amounting to	157,200.00	1,152,800.00	45,881,623.97
			$424,525,676.42
and has been decreased as follows:			
Three year gold notes of 1911 paid March, 1914	$30,000,000.00		
Mortgage on real estate in city of Utica paid off	2,500.00		
Payments of installments falling due during the year on this company's pro rata liability in connection with the certificates issued under equipment trust agreement, as follows:			
Trust of 1907, installment due November, 1914	793,660.12		
Trust of 1910, installment due January, 1914	433,964.42		
Trust of 1912, installment due January, 1914	477,116.10		
B & A Trust of 1912, installment due October, 1914	500,000.00		
Trust of 1913, installment due January, 1914	303,630.59	32,510,871.23	
Outstanding as shown on balance sheet of December 31, 1914			$392,014,805.19

The New York Central and Hudson River Railroad Company
(including Boston & Albany Railroad, for which separate statistics will be found at end of report)

SUMMARY OF FINANCIAL OPERATIONS AFFECTING INCOME

	1914	1913	Increase or Decrease
OPERATING INCOME	3,773.95	3,753.12	
RAILWAY OPERATIONS	*miles operated*	*miles operated*	20.83 *miles*
Revenues	$112,741,051.22	$122,683,809.35	—$9,942,758.13
Expenses	84,033,105.56	93,414,436.04	—9,381,330.48
NET REVENUE FROM RAILWAY OPERATIONS	$28,707,945.66	$29,269,373.31	—$561,427.65
Percentage of expenses to revenues	(74.54%)	(76.14%)	—(1.60%)
Railway taxes accrued	$6,162,219.76	$6,356,545.91	—$194,326.15
Uncollectible railway revenue	2,877.49	.....	2,877.49
RAILWAY OPERATING INCOME	$22,542,848.41	$22,912,827.40	—$369,978.99
MISCELLANEOUS OPERATIONS			
Revenues	$2,133.67	$2,402.39	—$268.72
Expenses and taxes	2,171.65	3,449.08	—1,277.43
MISCELLANEOUS OPERATIONS LOSS	$37.98	$1,046.69	$1,008.71
TOTAL OPERATING INCOME	$22,542,810.43	$22,911,780.71	—$368,970.28
OTHER INCOME			
Joint facilities rents	$2,436,499.85	$2,283,363.39	$153,136.46
Miscellaneous rents	742,449.96	702,493.98	39,955.98
Net profit from investments in physical property	353,033.12	118,074.06	234,959.06
Separately operated properties, profit	4,895.09	.....	4,895.09
Dividends on stocks owned	9,115,759.71	12,168,536.78	—3,052,777.07
Interest on funded debt owned	579,454.50	450,181.03	129,273.47
Interest on other securities, loans and accounts	705,295.97	652,588.69	52,707.28
Contributions from other companies	144,246.27	260,359.34	—116,113.07
Miscellaneous income	49,880.18	33,677.84	16,202.34
TOTAL OTHER INCOME	$14,131,514.65	$16,669,275.11	—$2,537,760.46
GROSS CORPORATE INCOME	$36,674,325.08	$39,581,055.82	—$2,906,730.74
DEDUCTIONS FROM GROSS CORPORATE INCOME			
Rentals of leased lines	$8,004,145.48	$8,518,856.66	—$514,711.18
Hire of equipment, debit balance	557,192.34	1,010,113.65	—452,921.31
Joint facilities rents	588,277.20	567,853.29	20,423.91
Miscellaneous rents	792,247.84	714,082.12	78,165.72
Miscellaneous tax accruals	84,936.31	38,120.61	46,815.70
Separately operated properties, loss	.....	39,281.33	—39,281.33
Interest on bonds and other long-term debt	12,263,736.00	10,603,317.10	1,660,418.90
Interest on gold notes of 1911 and 1912	1,125,000.00	2,250,000.00	—1,125,000.00
Interest on equipment trust certificates	1,434,038.18	1,347,411.57	86,626.61
Other interest	3,057,430.06	1,170,832.75	1,886,597.31
Maintenance of investment organization	1,031.20	.....	1,031.20
Income transferred to other companies	31,936.35	67,543.75	—35,607.40
St L & A Railway: rental of leased line	10,000.00	10,000.00	.....
Other deductions	35,681.75	84.58	35,597.17
TOTAL DEDUCTIONS FROM GROSS CORPORATE INCOME	$27,985,652.71	$26,337,497.41	$1,648,155.30
NET CORPORATE INCOME	$8,688,672.37	$13,243,558.41	—$4,554,886.04
DIVIDENDS DECLARED: four in 1913; three in 1914*	$8,458,890.00	$11,243,021.25	—$2,784,131.25
MISCELLANEOUS APPROPRIATIONS OF INCOME	24,347.04	.....	24,347.04
SURPLUS FOR THE YEAR CARRIED TO PROFIT AND LOSS	$205,435.33	$2,000,537.16	—$1,795,101.83

Balance to credit of profit and loss (free surplus) as shown in report of December 31, 1913		$12,965,794.15
Additions for year:		
Surplus from operations	$205,435.33	
Sundry deferred credits and adjustments	938,561.05	$1,143,996.38
		$14,109,790.53
Deductions for year:		
Discount and expenses account of Refunding and Improvement mortgage bonds	$3,101,875.52	
Discount, commissions and expenses account N Y C Lines equipment trust of 1913	103,708.07	
Commissions, brokerage and expenses on various short term loans	74,922.19	
Cash advances to Clearfield Bituminous Coal Corporation	445,000.00	
Charging off value of abandoned facilities	213,396.30	
Adjustment of accounts with Pullman Co. July 1, 1910, to December 31, 1913	200,000.00	
Adjustment of amount paid in connection with land for Grand Central Terminal Improvement	210,227.65	
Charging off various uncollectible accounts, settlement of suits and sundry adjustments of accounts	324,918.72	4,674,048.45
BALANCE TO CREDIT OF PROFIT AND LOSS (FREE SURPLUS), DECEMBER 31, 1914		$9,435,742.08

*The fourth quarterly dividend at the rate of 1¼ per cent on its outstanding capital stock was declared December 23, 1914, by the successor company, The New York Central Railroad Company, payable February 1, 1915.

The decline in operating revenues which commenced in October, 1913, continued throughout the whole of the year 1914, causing a net decrease of $9,942,758.13, equal to 8.1 per cent.

The decrease in freight revenues, $6,753,888.35, was 11.6 per cent. Almost every commodity in the list shows a loss in volume and the consequent decrease in the density of freight traffic per mile of road was 381,215 ton-miles.

The decrease in passenger revenue, $2,765,729.79, was in both local and interline business. The decrease in mileage amounts to 142,118,913 passenger-miles. The average amount received from each passenger decreased a little over three cents and the density of passenger traffic per mile of road decreased 43,038 passenger-miles.

The revenue from express business decreased $649,931.06, due to decrease in the volume of business and reduced rates. Mail earnings increased $468,440.38, due to more mail transported.

Rail operating expenses decreased $9,381,330.48 or 10.04 per cent. The decreases by groups were as follows:

Maintenance of way and structures decreased $3,393,644.22. There was less improvement work conducted and a lighter traffic sustained. The property was maintained to its standard.

Maintenance of equipment decreased $1,726,246.57, due to decreased mileage made by equipment.

Transportation expenses decreased $3,717,536.64, due to decrease in volume of business and the benefits in the form of increased efficiency resulting from previous investments.

Traffic expenses decreased $419,733.85.

Miscellaneous operations decreased $106,204.18.

General expenses decreased $17,965.02, notwithstanding an increase of $52,347.24 in expenditures on account of the Government Valuation requirements. The Government has not yet undertaken the actual work of valuation of your property and this expenditure represents what has been done to organize for the work and assemble the large amount of records and data which will be required by the authorities when they start the work.

The Pension Department retired and placed upon the pension rolls 186 employees during the year; 104 of these were authorized because of the attainment of seventy years of age and 82 because of total and permanent physical disability; 94 pensioners died during 1914. The total amount paid in pension allowances was $238,011.51.

Operating income shows a decrease of only $368,970.28. Non-operating income shows a decrease of $2,537,760.46, due to less dividends having been received on some of the company's investments, principally in Lake Shore & Michigan Southern Railway Company and Michigan Central Railroad Company.

Deductions from corporate income show an increase of $1,648,155.30, due to increased carrying charges on the company's unfunded debt, resulting from the financial conditions which existed at the time when unfunded obligations had to be issued or extended.

During the year there was expended for additions and improvements to the property $7,555,914.69 and for similar items on lines of leased railroad companies, $4,761,835.28. These represent the continuance or completion of work authorized and commenced in previous years. There was expended for additional equipment $7,886,284.04, mainly for new deliveries of trust equipment.

During the year additional equipment trust certificates were issued under the New York Central Lines Equipment Trust agreement of January 1, 1913, to the amount of $6,944,000, so there is now outstanding a total of $22,438,000 of these certificates. Of the equipment bought with these certificates there has been allotted to the New York Central and Hudson River Railroad $8,628,836.92.

Under the refunding and improvement mortgage described in last year's report, the Public Service Commission of the State of New York has authorized the issue of $70,000,000, of which $40,000,000 has been issued and sold. The proceeds have been used to retire the three-year gold notes of 1911 and some of the notes maturing in 1914 which had been theretofore issued to pay for additions to the property. The balance of the amount authorized, $30,000,000, has been deferred because of the radical changes in the money situation which have developed since the authority was obtained.

The agreement between this company and the New York New Haven & Hartford Railroad Company for the establishment of through routes, etc., via the Boston & Albany Railroad, was cancelled by the New York New Haven & Hartford Railroad Company as of January 31, 1914, with the consent of the directors of your company, because of orders issued by the Government.

In May, 1913, this company joined in the application to the Interstate Commerce Commission for an increase of about five per cent in freight rates. The decision of the Commission at first gave no relief, but on account of the unusual business conditions which arose subsequent to this decision, the case was reopened, and on December 16th the Commission granted an increase of not more than five per cent with specified commodities excepted. To the extent of its application, the decision of the Commission is helpful, besides inspiring confidence in their general attitude towards the railroads.

Work continued during the year on certain phases of the Grand Central Terminal Improvement which could not well be suspended, such as the excavation of the block at 42d Street and Lexington Avenue and the construction of the loops under the building. The Board of Estimate and Apportionment of the City of New York accepted the street work completed during the previous year under the terms of the general agreement with the City dated June 19, 1903. A lease was made for a store and office building site at 45th Street and Vanderbilt Avenue, the building to cost $1,000,000. A new building has been commenced at 46th Street and Lexington Avenue to cost $980,000, principally for the use of the Post Office Department under lease, in connection with the parcel post business. The New Haven Company has the option until January, 1922, to participate in the cost and benefits of this structure. The building for the Yale Club at 44th Street and Vanderbilt Avenue has been completed. The building for the Railroad Branch of the Young Men's Christian Association at 50th Street and Park Avenue has been completed and occupied since May 1, 1914.

The following changes took place in the Board of Directors during the year:

Resigned: December 31, 1913—William C. Brown,
January 14, 1914—J. Pierpont Morgan,
April 15, 1914—Lewis Cass Ledyard,
September 9, 1914—James Stillman.

Elected: January 1, 1914—Alfred H. Smith,
January 14, 1914—Harold S. Vanderbilt,
March 12, 1914—Ogden Mills,
April 15, 1914—Robert S. Lovett.

CONDENSED GENERAL BALANCE SHEET, DECEMBER 31, 1914

ASSETS

INVESTMENTS			
Investment in road		$253,653,988.41	
Investment in equipment:			
Trust	$42,881,342.53		
Other	79,768,852.88	122,650,195.41	$376,304,183.82
Improvements on leased railway property			86,302,060.59
Miscellaneous physical property			5,906,630.39
Investments in affiliated companies:			
Stocks		$160,369,408.43	
Bonds		10,327,808.91	
Notes		23,935,712.26	
Advances		253,999.90	194,886.929.50
Other investments:			
Stocks		$9,285,552.01	
Bonds		4,675,052.00	
Notes		124,830.00	
Miscellaneous		2,545,677.52	16,631,111.53
TOTAL INVESTMENTS			$680,030,915.83
CURRENT ASSETS			
Cash		$16,078,562.63	
Demand loans and deposits		153,000.00	
Special deposits		1,509,476.08	
Loans and bills receivable		36,651.62	
Traffic and car-service balances receivable		5,551,662.11	
Net balance due from agents and conductors		2,969,676.49	
Miscellaneous accounts receivable		7,956,336.53	
Material and supplies		9,362,393.80	
Interest and dividends receivable		793,086.05	44,410,845.31
DEFERRED ASSETS			
Working fund advances		$145,605.02	
Insurance and other funds		183,783.18	329,388.20
UNADJUSTED DEBITS			
Rents and insurance premiums paid in advance		$52,008.72	
Discount on funded debt		109,476.61	
Other unadjusted debits		3,152,137.42	
Securities issued or assumed—unpledged		613,896.00	
Equipment acquired from lessor companies (per contra)		15,542,423.60	
Securities acquired from lessor companies (per contra)		502,351.00	19,972,293.35
			$744,743,442.69

LIABILITIES

STOCK			
Capital stock		$225,579,170.00	
Capital stock held by the company		1,896.00	$225,581,066.00
LONG TERM DEBT			
Funded debt unmatured:			
Equipment obligations	$32,150,605.19		
Mortgage bonds	164,109,000.00		
Collateral trust bonds	109,914,400.00		
Miscellaneous obligations	85,840,800.00	$392,014,805.19	
Non-negotiable debt to affiliated companies		696,902.36	392,711,707.55
CURRENT LIABILITIES			
Loans and bills payable		$60,509,800.00	
Traffic and car-service balances payable		5,861,527.64	
Audited accounts and wages payable		8,464,240.15	
Interest matured unpaid:			
Matured, payable January 1, 1915	$2,542,925.22		
Interest unclaimed	20,838.35	2,563,763.57	
Dividends matured unclaimed		112,639.13	
Funded debt matured unpaid		5,790.00	
Unmatured interest accrued		3,588,931.92	
Unmatured rents accrued		422,337.08	
Other current liabilities		2,866,419.44	84,395,448.93
UNADJUSTED CREDITS			
Tax liability		$401,949.09	
Insurance and casualty reserves		49,319.56	
Operating reserves:			
Equipment	$257,205.41		
Personal injuries reserve fund	3,620.00	260,825.41	
Accrued depreciation of equipment		8,069,281.27	
Liability to lessor companies for equipment acquired (per contra)		15,542,423.60	
Liability to lessor companies for securities acquired (per contra)		502,351.00	
Other unadjusted credits		2,011,518.00	26,837,667.93
CORPORATE SURPLUS			
Additions to property through income and surplus		$5,608,735.49	
Sinking fund reserves		173,074.71	
Total appropriated surplus		$5,781,810.20	
Profit and loss—balance		9,435,742.08	
TOTAL CORPORATE SURPLUS			$15,217,552.28
			$744,743,442.69

On April 7, 1914, the death occurred of Samuel F. Barger, who had been a director of this company for a period of forty years from November 1, 1869, to January 27, 1909.

The following appointments were made during the year:

Malcolm R. Connell, Auditor of Disbursements, succeeding James H. Foulds, Jr., retired;

Ira A. Hubbel, Assistant Freight Traffic Manager, vice Herbert D. Carter, deceased;

William A. Newman, General Freight Agent, succeeding Ira A. Hubbel; John McAuliffe, Jr., Foreign Freight Agent.

Under date of April 29, 1914, the Board of Directors of this company approved an agreement under the terms of which The New York Central and Hudson River Railroad Company, The Lake Shore and Michigan Southern Railway Company, Chicago Indiana and Southern Railroad Company, The Dunkirk Allegheny Valley and Pittsburgh Railroad Company, The Terminal Railway of Buffalo, Geneva Corning and Southern Railroad Company, Detroit and Chicago Railroad Company, Detroit Monroe and Toledo Railroad Company, Kalamazoo and White Pigeon Railroad Company, The Northern Central Michigan Railroad Company and the Swan Creek Railway Company of Toledo were to be consolidated into a new company to be named The New York Central Railroad Company. This agreement was duly approved by the public service commissions having jurisdiction in the states through which the several companies operated, and at a special meeting of the stockholders of The Lake Shore & Michigan Southern Railway Company, held at Cleveland, Ohio, December 22, 1914, the consolidation was duly ratified, and on the same day the agreement was filed in the offices of the Secretaries of State of the States of New York, Pennsylvania, Ohio, Indiana and Illinois and on December 23, 1914, in the office of the Secretary of State of the State of Michigan. Although the consolidation became effective on the filing of the agreement, action was taken by the Board of Directors of the new company providing that the accounts of each portion of the consolidated road formerly owned by a constituent company should be kept separate until the close of the year 1914.

Acknowledgement is hereby rendered to officers and employees for faithful and efficient service.

ALFRED H. SMITH,
President.

LAKE SHORE AND MICHIGAN SOUTHERN RAILWAY COMPANY—ANNUAL REPORT

Under date of April 29, 1914, the Board of Directors of this company approved an agreement under the terms of which The New York Central and Hudson River Railroad Company, The Lake Shore and Michigan Southern Railway Company, Chicago Indiana and Southern Railroad Company, The Dunkirk Allegheny Valley and Pittsburgh Railroad Company, The Terminal Railway of Buffalo, Geneva Corning and Southern Railway Company, The Detroit and Chicago Railroad Company, The Detroit Monroe and Toledo Railroad Company, The Kalamazoo and White Pigeon Railroad Company, The Northern Central Michigan Railroad Company and The Swan Creek Railway Company of Toledo were to be consolidated into a new company to be named The New York Central Railroad Company. This agreement was duly approved by the public service commissions having jurisdiction in the states through which the several companies affected operated, and at a special meeting of the stockholders of The Lake Shore and Michigan Southern Railway Company, held at Cleveland, Ohio, December 22, 1914, the consolidation was duly ratified, and thereupon, on the same date, the agreement was filed in the offices of the Secretary of State of the states of New York, Pennsylvania, Ohio, Indiana and Illinois, and on December 23, 1914, in the office of the Secretary of State of the state of Michigan. Although the consolidation became effective on the filing of the agreement, in accordance with action taken by the Board of Directors of the new company it was provided that the accounts of each portion of the consolidated road formerly owned by a constituent company should be kept separate until the close of the year 1914. This report, therefore, covers the operations and financial transactions of The Lake Shore and Michigan Southern Railway Company to December 23, 1914, and of the road and property owned by it, prior to that date, to and including December 31, 1914.

On July 1, 1914, there became effective revised classifications of revenues, expenses, income, profit and loss, general balance sheet accounts, expenditures for road and equipment, and locomotive, train and car mileage, as promulgated by the Interstate Commerce Commission, and the accounts and records of the company have been kept since that date in conformity with such classifications and in accordance with the orders of the Commission. For purposes of comparison, the revenue, expense and income accounts, and locomotive, train and car mileage figures for the first six months of the year 1914 and for the entire year 1913 have been correspondingly revised on the basis of the new classifications.

The mileage embraced in the operation of the road is as follows:

	Miles.
Main line and branches	849.80
Proprietary lines	269.72
Leased lines	542.52
Trackage rights	190.13
Total road operated	1,852.17

As compared with the mileage operated during the year ended December 31, 1913, there is an increase of .71 of a mile in main line and branches due to changes in tracks through Air Line Junction yard, a decrease of 1.18 miles in leased lines due to re-classification of track from the passenger station at Oil City, Pennsylvania, to a connection with the Pennsylvania Railroad, a net decrease of .33 of a mile in trackage rights due to adjustments and discontinued use of Pennsylvania Railroad track at Oil City, aggregating 1.07 miles, as against additional trackage acquired over rails of Chicago Indiana and Southern Railroad between Gibson, Indiana, and Gibson Transfer, Indiana, a distance of .74 of a mile. These changes resulted in a net decrease in miles of road operated of .80 of a mile. A table showing in detail the miles of road and track operated will be found upon another page.

There was no change in capital stock during the year, the amount authorized and outstanding December 31, 1914, being $50,000,000.00.

The funded debt outstanding on December 31, 1913, was	$169,084,532.79
It has been increased during the year by adding pro-rata liability for additional certificates issued under the New York Central Lines Equipment Trust agreement of 1913	1,154,735.30
	$170,239,268.09
It has been decreased by payments during the year of pro-rata of installments on account of equipment trust certificates as follows:	
January 1, fourth installment 1910 trust	$889,149.54
January 1, second installment 1912 trust	198,330.75
January 1, first installment 1913 trust	58,868.40
November 1, seventh installment 1907 trust	447,226.18
	1,593,574.87
Total funded debt outstanding December 31, 1914	$168,645,693.22

SUMMARY OF FINANCIAL OPERATIONS AFFECTING INCOME

	1914	1913	Increase or Decrease
OPERATING INCOME	1,852.17	1,852.97	
RAILWAY OPERATIONS	*miles operated*	*miles operated*	*.80 miles*
Revenues	$51,524,285.83	$59,353,109.71	—$7,828,823.88
Expenses	37,699,350.80	43,745,396.36	—6,046,045.56
NET REVENUE—RAILWAY OPERATIONS	$13,824,935.03	$15,607,713.35	—$1,782,778.32
Percentage of expenses to revenues	(73.17%)	(73.70%)	—(.53%)
RAILWAY TAX ACCRUALS	$2,413,899.63	$2,126,437.54	$287,462.09
UNCOLLECTIBLE RAILWAY REVENUES	4,972.50	.....	4,972.50
	$2,418,872.13	$2,126,437.54	$292,434.59
RAILWAY OPERATING INCOME	$11,406,062.90	$13,481,275.81	—$2,075,212.91
MISCELLANEOUS OPERATIONS			
Revenues	$25,282.04	$23,796.78	$1,485.26
Expenses and taxes	10,636.99	11,651.99	—1,015.00
MISCELLANEOUS OPERATING INCOME	$14,645.05	$12,144.79	$2,500.26
TOTAL OPERATING INCOME	$11,420,707.95	$13,493,420.60	—$2,072,712.65
NON-OPERATING INCOME			
Hire of equipment—credit balance	$39,826.13	$667,085.87	—$627,259.74
Joint facility rents	361,871.51	380,247.05	—18,375.54
Income from lease of road	5,000.00	5,000.00	.....
Miscellaneous rents	146,832.19	105,111.30	41,720.89
Miscellaneous non-operating physical property	* 1,884.17	608.74	—2,492.91
Separately operated property—profit	618,166.77	1,213,371.26	—595,204.49
Dividend income	4,589,084.85	6,493,713.80	—1,904,628.95
Income from funded securities	196,690.07	564,450.57	—367,760.50
Income from unfunded securities and accounts	1,629,968.44	1,025,334.20	604,634.24
Miscellaneous income	5,912.74	6,144.92	—232.18
TOTAL NON-OPERATING INCOME	$7,591,468.53	$10,461,067.71	—$2,869,599.18
GROSS INCOME	$19,012,176.48	$23,954,488.31	—$4,942,311.83
DEDUCTIONS FROM GROSS INCOME			
Joint facility rents	$930,365.63	$901,485.89	$28,879.74
Rent for leased roads	2,706,742.99	2,904,413.31	—197,670.32
Miscellaneous rents	23,159.65	21,916.69	1,242.96
Miscellaneous tax accruals	2,818.01	1,220.25	1,597.76
Separately operated properties—loss	.....	36.513.77	—36,513.77
Interest for funded debt	6,602,897.22	6,632,067.65	—29,170.43
Interest for unfunded debt	1,619,854.09	968,530.64	651,323.45
Maintenance of investment organization	1,465.09	.....	1,465.09
TOTAL DEDUCTIONS FROM GROSS INCOME	$11,887,302.68	$11,466,148.20	$421,154.48
NET INCOME	$7,124,873.80	$12,488,340.11	—$5,363,466.31
DIVIDEND APPROPRIATIONS OF INCOME			
On guaranteed stock (12% 1914, 18% 1913)	$64,020.00	$96,030.00	—$32,010.00
On common stock (12% 1914, 18% 1913)	5,935,980.00	8,903,970.00	—2,967,990.00
TOTAL DIVIDEND APPROPRIATIONS OF INCOME	$6,000,000.00	$9,000,000.00	—$3,000,000.00
INCOME BALANCE TRANSFERRED TO CREDIT OF PROFIT AND LOSS	$1,124,873.80	$3,488,340.11	—$2,363,466.31
Amount to credit of profit and loss (free surplus), December 31, 1913			$49,135,944.06
Add:			
Balance to credit of profit and loss for the year 1914	$1,124,873.80		
Profit from sale of $4,450,000.00 bonds of The Cleveland Short Line Railway Company	253,035.00		
Profit from sale of 3,000 shares of Reading Company common stock	172,793.70		1,550,702.50
			$50,686,646.56
Deduct:			
Loss in exchange on one year notes retired during the year	$106,000.00		
Commission and expenses on one year notes issued during the year	75,593.64		
Discount, commission and expenses on New York Central Lines equipment trust certificates of 1913	29,402.98		
Adjustment of sundry accounts including uncollectible items (net)	126,653.22		337,649.84
Balance to credit of profit and loss (free surplus), December 31, 1914			$50,348,996.72

*Debit.

The total railway operating revenues for the year were $51,524,285.83, a decrease of $7,828,823.88 or 13.19 per cent as compared with the previous year. The decline in operating revenues, which commenced in the latter part of 1913, continued during the year of 1914, reflecting the general business depression prevailing throughout the country.

Freight revenue was $31,979,887.51, a decrease of $6,510,296.24, or 16.94 per cent. There was a falling off in practically all classes of revenue freight carried, which amounted to 33,817,871 tons, being 9,276,162 tons or 21.52 per cent less than last year. Tons carried one mile decreased 22.59 per cent, and freight train mileage 23.5 per cent. The general reduction in freight traffic was partially caused by diminution in the export and import business of the country, and by a large decrease in tonnage of bituminous coal handled, brought about by a cessation of coal mining operations in southeastern Ohio since April 1st through a strike of miners as a result of a disagreement between mine operators and employees in connection with the Green screenings law. The hoof and mouth disease, which was prevalent during the latter part of the year in parts of the states of Ohio, Michigan and Indiana tributary to the company's rails, made necessary rigid quarantine regulations, causing a decreased movement in live stock and packing house products.

In May, 1913, this company joined with other carriers in an application to the Interstate Commerce Commission for an increase of approximately five per cent in freight rates. After devoting considerable time to hearings, and requiring the carriers to submit a voluminous amount of data compiled at a large expense to them, the Commission granted to roads in Central Freight Association territory an increase of five per cent to apply on class rates and certain commodities, but not including coal, ore and several other commodities which comprise a large portion of the tonnage handled by the company. The increased rates became effective October 26, 1914, and have not, therefore, materially affected the freight revenue of the company for the year. The Commission, in rendering their decision on the application for increased freight rates, recommended an increase, where permissible, in passenger rates, and the abolition of various kinds of free service heretofore having been performed by the railroads.

Passenger revenue amounted to $12,735,521.64, a decrease of $690,693.47. There were decreases in the number of passengers carried of 1,027,654, or 9.84 per cent, in passengers carried one mile of 44,941,965, or 6.61 per cent, in passenger train mileage of 6.72 per cent, and in density of passenger traffic of 9.99 per cent.

Revenues from transportation of mails was $2,148,900.44, an increase of $88,611.13, due to the reinstatement, effective January 26, 1914, in mail service of certain magazines which were being handled in freight train service, and additional remuneration allowed from July 1, 1913, account parcel post.

Revenue derived from express traffic was $1,687,490.08, a decrease of $416,125.77, attributable to smaller volume of business handled, caused by the business depression and increasing use made of the parcel post facilities, also to reduction in express rates which became effective February 1, 1914, by order of the Interstate Commerce Commission.

Other transportation revenues amounted to $1,197,499.22, a decrease of $114,228.36, principally due to reduction in receipts from switching, occasioned by the falling off in freight traffic.

Incidental revenues, which include practically all revenues heretofore shown under other than transportation and auxiliary revenues, were $1,774,986.94, a decrease of $186,091.17. The noticeable reductions were in revenues derived from dining and buffet cars, parcel rooms, demurrage and miscellaneous sources, the latter including revenues from operation of coal and ore docks, all of which are the result of the decrease in freight and passenger business.

Operating expenses for the year, by groups, were:

	Amount	Decrease	Per cent
Maintenance of way and structures	$5,561,822.90	$2,061,371.48	27.04
Maintenance of equipment	10,377,316.84	1,633,232.21	13.05
Traffic	960,220.12	113,887.96	10.60
Transportation	18,284,601.98	2,464,309.12	11.88
Miscellaneous operations	589,773.61	74,727.25	11.25
General	1,425,615.35	301,482.46*	26.82
*Increase Total	$37,699,350.80	$6,046,045.56	13.82

In the maintenance of the roadbed, buildings and other structures, such work was done as was necessary in order to maintain the property to its standard. There were 450,000 less ties renewed and 100 miles less of rail relaid than in the previous year. Expenditures for new ballasting and renewing of bridges and right of way fences were curtailed somewhat. Owing to the condition of the train shed at the Cleveland Union Passenger Station it became necessary to tear it down, in place of which an inexpensive but useful and safe arrangement, with overhead concourse and improved capacity of tracks and platforms, was built. The expense of this work, together with the cost of other improvements which were made at the station simultaneously, resulted in a charge against maintenance expenses of $125,000.00, causing the increase shown against station and office buildings.

Although decreases are shown in practically all maintenance of equipment items, excepting depreciation, due to a diminished demand for use of the company's equipment during the year, expenditures were necessary in equipping 183 locomotives with automatic fire doors and the application of United States safety appliance standards to a large number of freight and passenger cars in order to comply with various state and federal laws. There were also substantial expenditures for other additions and betterments.

The decrease in traffic expenses is attributable principally to a lesser amount expended for advertising. Increases are shown for superintendence and outside agencies, due to the transfer of payrolls of soliciting agency offices located along the line of the road, previously paid by fast freight lines. The increase in these accounts are offset by a corresponding reduction in the expense of fast freight lines.

In transportation expenses practically all items affected by trade conditions show decreases, due to falling off in traffic.

Miscellaneous operations, which consist largely of expenses previously shown under "Outside Operations," decreased $74,727.25, attributable to reduction in dining and buffet car service and in the cost of ice used in the company's commercial ice supply plants.

General expenses increased $301,482.46, due to heavier legal and other expenses on account of the consolidation, additional accounting expense incurred in the preparation of data for the application for the increase in freight rates and to comply with legislative requirements, preliminary work in connection with the proposed Federal valuation of this company's lines and increase in amount paid for pensions. In the operation of the Pension Department during the year 99 employees were retired and placed upon the pension rolls. Of these retirements 49 were authorized because of the attainment of seventy years of age and 50 because of total permanent physical disability. Thirty-four died during 1914, and at the close of the year 429 retired employees were carried upon the pension rolls.

Railway tax accruals amounted to $2,413,899.63, an increase over the previous year of $287,462.09, chiefly due to a higher valuation placed upon the company's property and increase in tax rates.

Non-operating income for the year amounted to $7,591,468.53, a decrease of $2,869,599.18 as compared with the previous year. There was a loss in income from dividends on stock owned by the company of $1,904,628.95, largely due to the fact that no dividends were received on preferred stock of The New York Chicago and St. Louis Railroad Company and on the stock of The Toledo and Ohio Central Railway Company as compared with five per cent on each received in 1913; also to the payment in 1913 by The Pittsburgh and Lake Erie Railroad Company of an extra dividend amounting to five per cent as compared with no extra dividend received in 1914. Income from funded securities decreased $367,760.50 account sale of bonds of The Cleveland Short Line Railway Company. There were also large decreases in income from rental of equipment, and the company's proportion of profit from operation of The Pittsburgh McKeesport and Youghiogheny Railroad, caused by the business depression prevailing throughout the year. Income from unfunded securities and accounts increased $604,634.24, due to interest on additional loans made by the company during the year.

Deductions from gross income for the year were $11,887,302.68, an increase over last year of $421,154.48. The interest charges on unfunded debt were $651,323.45 in excess of similar charges for 1913, due to additional short term notes issued during the year.

Out of the net income for the year, amounting to $7,124,873.80, there were paid two dividends of six per cent each on both the guaranteed and common capital stock, aggregating twelve per cent or $6,000,000.00, leaving a balance of $1,124,873.80 which was transferred to the credit of profit and loss.

There was expended during the year, for additions and improvements to the property, $2,446,705.46, excluding equipment expenditures, all of which was charged direct to property investment account. The important items consisted of:

Completion of new car repair plant at Ashtabula to be used for repairing steel equipment.

Continuation of improvements at Air Line Junction, Ohio, consisting of additional yard tracks, new freight engine terminals and car repair shops.

Separation of grades and construction of third and fourth tracks through the City of Elyria, Ohio.

Continuation of work in connection with change of line at Port Clinton, Ohio.

Completion of new locomotive repair shops at Elkhart, Indiana.

Purchase from Armour & Company of ice houses located at Air Line Junction, Ohio.

Acquisition of land at Blasdell for connection with the Terminal Railway of Buffalo.

In addition to the above, expenditures were made for separation of grades at Chicago, Ashtabula, Cleveland, Toledo, Detroit and Sandusky in order to comply with state and municipal requirements.

A statement showing in detail the expenditures for additions and betterments will be found on a following page.

In an action instituted by the United States against this company and the Chesapeake and Ohio Railway Company, The Hocking Valley Railway Company, The Toledo and Ohio Central Railway Company, The Kanawha and Michigan Railway Company and others, the Circuit Court of the United States for the Southern District of Ohio on March 14, 1914, entered a decree in which, among other things, it was adjudged that the ownership of The Lake Shore and Michigan Southern Railway Company and the Chesapeake and Ohio Railway Company (although not in form joint, but separate) in the stock of The Kanawha and Michigan Railway Company and the resulting control of the latter company inhering in such holdings, were acquired in violation of the laws of the United States and in order to avoid further infraction of the federal law in this respect it was ordered that either the stock of The Kanawha and Michigan Railway Company, held by the Chesapeake and Ohio Railway Company, shall be sold and transferred to this company, or such holdings of both companies shall be disposed of by absolute sale. As a result of said decree, this company sold all its holdings in stock of The Kanawha and Michigan Railway Company, consisting of 40,296 shares, to The Toledo and Ohio Central Railway Company, receiving in payment therefor the one year five per cent note of that company dated October 1, 1914, amounting to $2,901,312.00. The company also loaned to The Toledo and Ohio Central Railway Company $2,888,500.00 in cash to enable it to purchase the holdings of the Chesapeake and Ohio Railway Company and others in stock of The Kanawha and Michigan Railway Company, receiving five per cent promissory notes for the amount so loaned, all of which notes are secured by a pledge of the stock of The Kanawha and Michigan Railway Company so acquired.

In accordance with an agreement between this company and the Pere Marquette Railroad Company, the Cincinnati Hamilton and Dayton Railway Company, the Pennsylvania Company, The Michigan Central Railroad Company, The Grand Trunk and Western Railway Company, and The Toledo St. Louis and Western Railway Company and The Hocking Valley Railway Company and The Toledo and Ohio Central Railway Company, this company transferred to The Hocking Valley Railway Company and The Toledo and Ohio Central Railway Company each 1.16 per cent of the company's holdings or 464 shares of the capital stock of the Toledo Terminal Railroad Company, each of the latter companies agreeing to assume its pro-rata share of liability for deficiency in interest charges and working expenses of the Toledo Terminal Railroad Company accruing after January 1, 1914.

There were sold during the year 3,000 shares, par value $150,000.00, of the common capital stock of the Reading Company and $4,450,000.00 of the first mortgage bonds of The Cleveland Short Line Railway Company. There were also sold 18 shares, par value $1,800.00, of the common stock of the Chicago Indiana and Southern Railroad Company, 9 shares, par value $900.00, of the stock of The Detroit and Chicago Railroad Company, 11 shares, par value $1,100.00, of the stock of The Detroit Monroe and Toledo Railroad Company, 14 shares, par value $1,400.00, of the stock of The Kalamazoo and White Pigeon Railroad Company, 18 shares, par value $1,800.00, of the stock of The Northern Central Michigan Railroad Company, and 10 shares, par value $1,000.00, of the stock of The Swan Creek Railway Company.

There were acquired during the year by purchase 158 shares of stock, par value $7,900.00, of The Pittsburgh McKeesport and Youghiogheny Railroad Company.

During the year the company issued its short term notes running for one year or less as follows: On January 22, 1914, $7,000,000.00 of one year 5 per cent notes payable January 22, 1915; on May 15, 1914, one year discount, United States, franc and pound sterling notes, payable May 15, 1915, for a total amount of $19,124,230.23; on June 10, 1914, $6,000,000.00 of one year discount notes, payable June 10, 1915; on September 6, 1914, one year pound sterling notes payable September 6, 1915, for an amount equivalent to $1,425,000.00; on December 1, 1914, $14,774,000.00 of nine months 5 per cent notes payable September 1, 1915, and $3,726,000.00 of one year 5 per cent notes payable December 1, 1915, and on December 15, 1914, one year notes payable December 15, 1915, for $755,000.00, making a total amount of short term notes issued by the company during the year $52,804,230.23; of the proceeds realized $23,767,910.00 was used in retiring the company's one year notes due March 15, 1914, for $12,000,000.00; one year pound sterling notes due May 15, 1914, for $9,726,500.00, and one year pound sterling notes due September 6, 1914, for $2,041,410.00; the balance of the proceeds realized were placed in the treasury of the company.

The laws of the State of Ohio gave to dissenting stockholders of The Lake Shore and Michigan Southern Railway Company the right to have their stock purchased before consolidation. The New York State Realty and Terminal Company, all of the stock of which was owned by The New York Central and Hudson River Railroad Company, acquired 32,200 shares at the price of $500.00 per share, and borrowed from The Lake Shore and Michigan Southern Railway Company $16,100,000.00 which it used in making the purchase, and for which it gave its promissory notes.

Under the contracts for the acquisition of coal lands in Christian, Montgomery, Fayette, Saline, Franklin and Williamson Counties, Illinois, as fully referred to in report for the year 1912, the company has received during the year deeds for 4,594 acres of additional coal lands and has paid therefor $126,647.89, making the total lands acquired to December 31, 1914, 74,573 acres at an aggregate cost of $2,399,659.34.

The stockholders of the company at a special meeting held on June 16, 1914, approved the placing upon the railroad of the company of a mortgage amounting to $100,000,000.00, to secure the twenty-five year four per cent gold bonds which had been issued in accordance with two indentures executed by the company to the Guaranty Trust Company of New York, trustee, dated November 18, 1903, and March 12, 1906, under each of which were issued $50,000,000.00 par value of bonds, or a total amount of $100,000,000.00. The Board designated as trustees under the mortgage the Central Trust Company of New York and Frank L. Littleton of Indianapolis, Indiana. Effective November 15, 1914, the Guaranty Trust Company of New York resigned as trustee for the twenty-five year gold bonds of 1903 and 1906, whereupon the Central Trust Company was appointed by the Board as trustee of said bonds.

The New York State Workmen's Compensation Act which became effective July 1, 1914, while of very limited application to employees of interstate carriers, owing to the Federal Employers' Liability Act, was of such a nature that the State Compensation Commission required the company to deposit $2,500.00 in cash and $25,000.00 par value of New York City 4¼ per cent bonds, costing the company $25,503.87.

The United States Express Company which had been conducting a through express business over the company's tracks from points east of Buffalo in connection with the Lackawanna Railroad, destined to Cleveland, Sandusky, Toledo, Detroit and Chicago and points beyond and vice versa, withdrew from the express business as of June 30, 1914. Thereupon a contract was made with the Adams Express Company, effective July 1, 1914, granting to that company practically the same territory and privileges heretofore enjoyed by the United States Express Company.

Out of $24,000,000.00 of certificates authorized under New York Central Lines Equipment Trust agreement dated January 1, 1913, there were issued to December 31, 1913, an aggregate of $15,494,000.00, of which this company's pro-rata allotment was $1,213,072.16. During the year 1914 additional certificates were issued amounting in total to $6,944,000.00. The cost of the equipment assigned to this company in connection with the issue of these latter certificates is approximaely $1,291,333.18, and its pro-rata amount of certificates, representing an amount not to exceed 90 per cent of the cost, is $1,154,735.30.

Cost of road and equipment on December 31, 1913, was..		$147,356.093.89
It has been increased during the year as follows:		
Expenditures for additions and betterments to the property as shown in detail elsewhere	$2,446,705.46	
Cost of equipment received during the year under the equipment trust of 1913.....	1,603,587.61	
Additional equity in 468 refrigerator cars cars covered by Merchants Despatch Equipment Trust of 1911.....	35,077.50	
Cost of equipment in excess of amount required to restore equity in equipment trusts of 1907, 1910 and 1912.....	19,696.71	4,105,067.28
		$151,461,161.17
Value of equipment retired from service during the year	$1,036,234.06	
Less amount charged account additions and betterments and adjustments.....	609,047.80	427,186.26
Cost of road and equipment, December 31, 1914.....		$151,033,974.91

A new transfer house which was constructed by the Indiana Harbor Belt Railroad Company near Gibson, Indiana, was opened for business on January 22, 1914. This transfer house is used for less than carload freight and at present is handling that class of freight received from Chicago industries and western railroads destined to points east and south of Chicago. The transfer house is used jointly by this company and The Michigan Central Railroad Company, Chicago Indiana and Southern Railroad Company and Indiana Harbor Belt Railroad Company. It was necessary for the company, in order to avail itself of the use of this facility, to acquire trackage rights for its freight trains over the rails of the Chicago Indiana and Southern Railroad Company between Indiana Harbor, Indiana, and Gibson Transfer, Indiana.

Mr. Alfred H. Smith, who was on December 10, 1913, elected President and a Director of the Company, assumed the duties of those offices on January 1, 1914.

On March 1, Mr. Frederick Zimmerman was appointed General Freight Agent of the company.

Acknowledgment is hereby rendered to officers and employes for faithful and efficient service.

ALFRED H. SMITH,
President.

CONDENSED GENERAL BALANCE SHEET, DECEMBER 31, 1914

ASSETS

Investments			
Investment in road and equipment			
Road		$93,531,879.60	
Equipment			
Owned	$29,244,215.12		
Trust equipment	28,685,066.45		
	$57,929,281.57		
Replacement fund—Ct	427,186.26	57,502,095.31	$151,033,974.91
Improvements on leased railway property			30,184.30
Sinking funds			5,000.00
Miscellaneous physical property			105,264.02
Investments in affiliated companies			
Stocks		$88,010,290.47	
Bonds		3,303,500.24	
Notes and advances			
New York Central and Hudson River R R Co.	$1,500,000.00		
Jamestown Franklin and Clearfield R R Co.....	2,151,384.17		
Lake Erie and Western R R Co.....	1,679,075.17		
Toledo and Ohio Central Ry Co	8,189,812.00		
Terminal Ry of Buffalo.	1,595,000.00		
Indiana Harbor Belt R R Co	1,301,307.97		
Chicago Indiana and Southern R R Co.....	4,895,469.05		
Detroit Terminal R R Co	357,360.08		
Cleveland Cincinnati Chicago and St Louis Ry Co	8,854,548.50		
Lake Erie Alliance and Wheeling R R Co.....	48,925.16		
Lake Erie and Pittsburg Ry Co	75,000.00		
Cleveland and Short Line Ry Co	1,966,174.65		
Merchants Despatch Transportation Co	250,000.00		
New York State Realty and Terminal Co.....	16,100,000.00		
Pittsburgh McKeesport and Youghiogheny R R Co.	5,669,597.47		
Toledo Terminal R R Co	148,922.45	54,782,576.67	146,096,367.38
Other investments			
Stocks		$21,841,835.71	
Advances		45.68	
Miscellaneous		825.00	21,842,706.39
Total investments			$319,113,497.00
Current assets			
Cash			
Treasurer	$5,588,222.63		
Petty cash	500.00		
Local treasurer	541,492.04		
Local treasurer's remittance in transit	40,000.00		
Agents' and conductors' remittances in transit.....	421,224.53	$6,591,439.20	
Special deposits		102,797.37	
Loans and bills receivable.....		10,100.00	
Traffic and car service balances receivable.		388,521.57	
Net balance receivable from agents and conductors		1,301,743.18	
Miscellaneous accounts receivable.....		7,600,154.11	
Material and supplies.....		5,041,358.93	
Interest and dividends receivable.....		1,161,153.37	
Other current assets		204,960.12	22,402,227.85
Deferred assets			
Working fund advances.....		$54,468.95	
Other deferred assets.....		6,508.60	60,977.55
Unadjusted debits			
Other unadjusted debits.....		$3,079,585.67	
Securities issued or assumed—unpledged			
Lake Shore and Michigan Southern Ry Co stock		3,900.00	3,083,485.67
Total			$344,660,188.07

LIABILITIES

Stock			
Capital stock			
Common		$49,466,500.00	
Guaranteed		533,500.00	$50,000,000.00
Long term debt			
Funded debt unmatured			
Equipment obligations			
Equipment trust certificates of 1907.....	$3,577,809.47		
Equipment trust certificates of 1910.....	9,780,644.94		
Equipment trust certificates of 1912.....	2,578,299.75		
Equipment trust certificates of 1913.....	2,308,939.06	$18,245,693.22	
Mortgage bonds			
First general mortgage...	$50,000,000.00		
Kalamazoo and White Pigeon first mortgage..	400,000.00	50,400,000.00	
Miscellaneous obligations			
Gold bonds of 1903.....	$50,000,000.00		
Gold bonds of 1906.....	50,000,000.00	100,000,000.00	168,645,693.22
Current liabilities			
Loans and bills payable.....		$52,805,230.23	
Audited accounts and wages payable			
Audited vouchers	$3,104,285.64		
Audited pay-rolls	1,042,955.14	4,147,240.78	
Miscellaneous accounts payable.....		551,208.07	
Interest matured unpaid.....		74,817.50	
Dividends matured unpaid.....		17,945.17	
Unmatured interest accrued.....		1,412,750.67	
Unmatured rents accrued.....		293,953.46	59,303,145.88
Deferred liabilities			
Other deferred liabilities.....			552,377.91
Unadjusted credits			
Operating reserves		$13,463.51	
Accrued depreciation—equipment		5,606,906.41	
Other unadjusted credits		632,352.05	6,252,721.97
Corporate surplus			
Additions to property through income and surplus		$9,557,252.37	
Profit and loss—balance.....		50,348,996.72	59,906,249.09
Total			$344,660,188.07